A reconstruction of Peters's six-place table of trigonometric functions (1929)

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29 August 2016

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Introduction

Johann Theodor Peters (1869–1941) was a German astronomer and computer of mathematical and astronomical tables. In 1910 and 1911, together with Julius Bauschinger, he published the first widely available 8-place table of logarithms [15]. This work was the basis of many later tables, most of which have been reconstructed by us.[1]

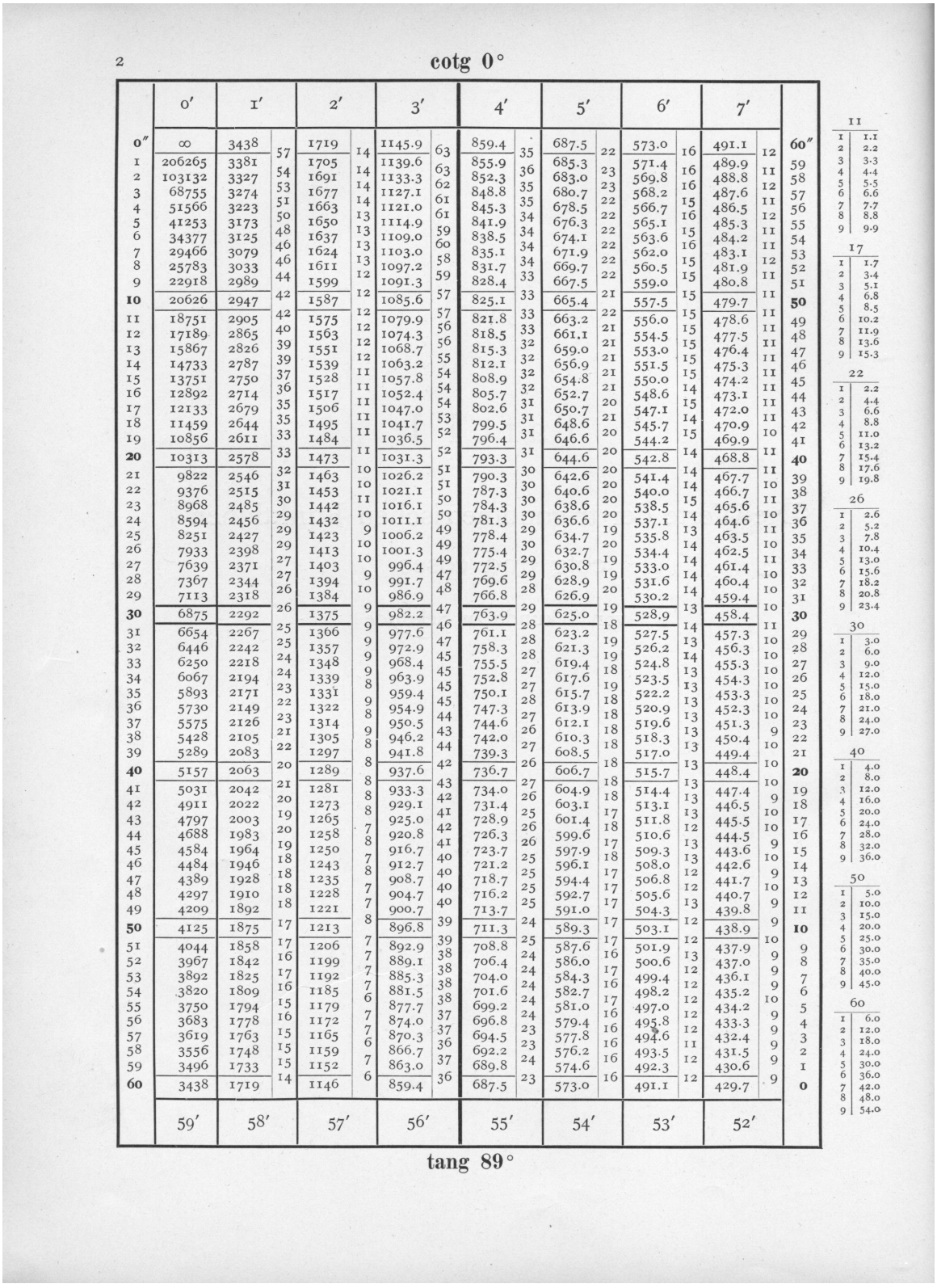
The table published by Peters in 1929 is a table of trigonometrical functions, following in the footsteps of the 7-place table published by him in 1918 [40].

The 7-place table had been obtained by interpolating the values in Briggs's table [17], but the new 6-place table is based on Andoyer's tables [3]. Andoyer gave the six functions every $10''$ and to 15 places.

Peters's table is split in two parts. In the first part, the values of cot and csc are given for every second until $1°20'$. In the second part, the values of the six trigonometrical functions are given every $10''$. In addition, the values of $w'' \cdot \csc(w)$ and $w'' \cdot \cot(w)$, where w is the angle in seconds, are given from $0°$ to $1°20'$.

This table has generally been well received, but one reviewer [95] regretted that in the first table the values of cot precede those of csc, whereas in the second table, they appear in the opposite order.

[1] For more information on Peters's tables, we refer the reader to our summary [90].



cotg 0°

	0′	1′		2′		3′		4′		5′		6′		7′		
0″	∞	3438	57	1719	14	1145.9	63	859.4	35	687.5	22	573.0	16	491.1	12	60″
1	206265	3381	54	1705	14	1139.6	63	855.9	36	685.3	23	571.4	16	489.9	11	59
2	103132	3327	53	1691	14	1133.3	62	852.3	35	683.0	23	569.8	16	488.8	12	58
3	68755	3274	51	1677	14	1127.1	61	848.8	35	680.7	22	568.2	15	487.6	11	57
4	51566	3223	50	1663	13	1121.0	61	845.3	34	678.5	22	566.7	16	486.5	12	56
5	41253	3173	48	1650	13	1114.9	59	841.9	34	676.3	22	565.1	15	485.3	11	55
6	34377	3125	46	1637	13	1109.0	60	838.5	34	674.1	22	563.6	16	484.2	11	54
7	29466	3079	46	1624	13	1103.0	58	835.1	34	671.9	22	562.0	15	483.1	12	53
8	25783	3033	44	1611	12	1097.2	59	831.7	33	669.7	22	560.5	15	481.9	11	52
9	22918	2989	42	1599	12	1091.3	57	828.4	33	667.5	21	559.0	15	480.8	11	51
10	20626	2947	42	1587	12	1085.6	57	825.1	33	665.4	22	557.5	15	479.7	11	**50**
11	18751	2905	40	1575	12	1079.9	56	821.8	33	663.2	21	556.0	15	478.6	11	49
12	17189	2865	39	1563	12	1074.3	56	818.5	33	661.1	21	554.5	15	477.5	11	48
13	15867	2826	39	1551	12	1068.7	55	815.3	32	659.0	21	553.0	15	476.4	11	47
14	14733	2787	37	1539	11	1063.2	54	812.1	32	656.9	21	551.5	15	475.3	11	46
15	13751	2750	36	1528	11	1057.8	54	808.9	32	654.8	21	550.0	15	474.2	11	45
16	12892	2714	35	1517	11	1052.4	54	805.7	32	652.7	21	548.6	14	473.1	11	44
17	12133	2679	35	1506	11	1047.0	53	802.6	31	650.7	20	547.1	15	472.0	11	43
18	11459	2644	33	1495	11	1041.7	52	799.5	31	648.6	21	545.7	14	470.9	11	42
19	10856	2611	33	1484	11	1036.5	52	796.4	31	646.6	20	544.2	15	469.9	10	41
20	10313	2578	32	1473	10	1031.3	51	793.3	31	644.6	20	542.8	14	468.8	11	**40**
21	9822	2546	31	1463	10	1026.2	51	790.3	30	642.6	20	541.4	14	467.7	11	39
22	9376	2515	30	1453	10	1021.1	50	787.3	30	640.6	20	540.0	14	466.7	10	38
23	8968	2485	29	1442	11	1016.1	50	784.3	30	638.6	20	538.5	15	465.6	11	37
24	8594	2456	29	1432	10	1011.1	49	781.3	30	636.6	20	537.1	14	464.6	10	36
25	8251	2427	29	1423	9	1006.2	49	778.4	29	634.7	19	535.8	13	463.5	11	35
26	7933	2398	27	1413	10	1001.3	49	775.4	30	632.7	20	534.4	14	462.5	10	34
27	7639	2371	27	1403	10	996.4	47	772.5	29	630.8	19	533.0	14	461.4	11	33
28	7367	2344	26	1394	9	991.7	48	769.6	29	628.9	19	531.6	14	460.4	10	32
29	7113	2318	26	1384	10	986.9	47	766.8	28	626.9	20	530.2	13	459.4	10	31
30	6875	2292	25	1375	9	982.2	46	763.9	29	625.0	19	528.9	14	458.4	11	**30**
31	6654	2267	25	1366	9	977.6	47	761.1	28	623.2	18	527.5	13	457.3	10	29
32	6446	2242	24	1357	9	972.9	45	758.3	28	621.3	19	526.2	13	456.3	10	28
33	6250	2218	24	1348	9	968.4	45	755.5	28	619.4	19	524.8	14	455.3	10	27
34	6067	2194	23	1339	8	963.9	45	752.8	27	617.6	18	523.5	13	454.3	10	26
35	5893	2171	22	1331	9	959.4	45	750.1	27	615.7	19	522.2	13	453.3	10	25
36	5730	2149	23	1322	8	954.9	44	747.3	28	613.9	18	520.9	13	452.3	10	24
37	5575	2126	21	1314	9	950.5	43	744.6	27	612.1	18	519.6	13	451.3	9	23
38	5428	2105	22	1305	8	946.2	44	742.0	26	610.3	18	518.3	13	450.4	10	22
39	5289	2083	20	1297	8	941.8	42	739.3	27	608.5	18	517.0	13	449.4	10	21
40	5157	2063	21	1289	8	937.6	43	736.7	26	606.7	18	515.7	13	448.4	10	**20**
41	5031	2042	20	1281	8	933.3	42	734.0	27	604.9	18	514.4	13	447.4	10	19
42	4911	2022	19	1273	8	929.1	41	731.4	26	603.1	18	513.1	13	446.5	9	18
43	4797	2003	20	1265	8	925.0	42	728.9	25	601.4	17	511.8	13	445.5	10	17
44	4688	1983	19	1258	7	920.8	41	726.3	26	599.6	18	510.6	12	444.5	10	16
45	4584	1964	18	1250	8	916.7	40	723.7	26	597.9	17	509.3	13	443.6	9	15
46	4484	1946	18	1243	7	912.7	40	721.2	25	596.1	18	508.0	13	442.6	10	14
47	4389	1928	18	1235	8	908.7	40	718.7	25	594.4	17	506.8	12	441.7	9	13
48	4297	1910	18	1228	7	904.7	40	716.2	25	592.7	17	505.6	12	440.7	10	12
49	4209	1892	17	1221	7	900.7	39	713.7	25	591.0	17	504.3	13	439.8	9	11
50	4125	1875	17	1213	8	896.8	39	711.3	24	589.3	17	503.1	12	438.9	9	**10**
51	4044	1858	16	1206	7	892.9	38	708.8	25	587.6	17	501.9	12	437.9	10	9
52	3967	1842	17	1199	7	889.1	38	706.4	24	586.0	16	500.6	13	437.0	9	8
53	3892	1825	16	1192	7	885.3	38	704.0	24	584.3	17	499.4	12	436.1	9	7
54	3820	1809	15	1185	7	881.5	38	701.6	24	582.7	16	498.2	12	435.2	9	6
55	3750	1794	16	1179	6	877.7	37	699.2	24	581.0	17	497.0	12	434.2	10	5
56	3683	1778	15	1172	7	874.0	37	696.8	24	579.4	16	495.8	12	433.3	9	4
57	3619	1763	15	1165	7	870.3	37	694.5	23	577.8	16	494.6	12	432.4	9	3
58	3556	1748	15	1159	6	866.7	36	692.2	23	576.2	16	493.5	11	431.5	9	2
59	3496	1733	15	1152	7	863.0	37	689.8	24	574.6	16	492.3	12	430.6	9	1
60	3438	1719	14	1146	6	859.4	36	687.5	23	573.0	16	491.1	12	429.7	9	**0**
	59′	58′		57′		56′		55′		54′		53′		52′		

11	
1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

17	
1	1.7
2	3.4
3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

26	
1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

30	
1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

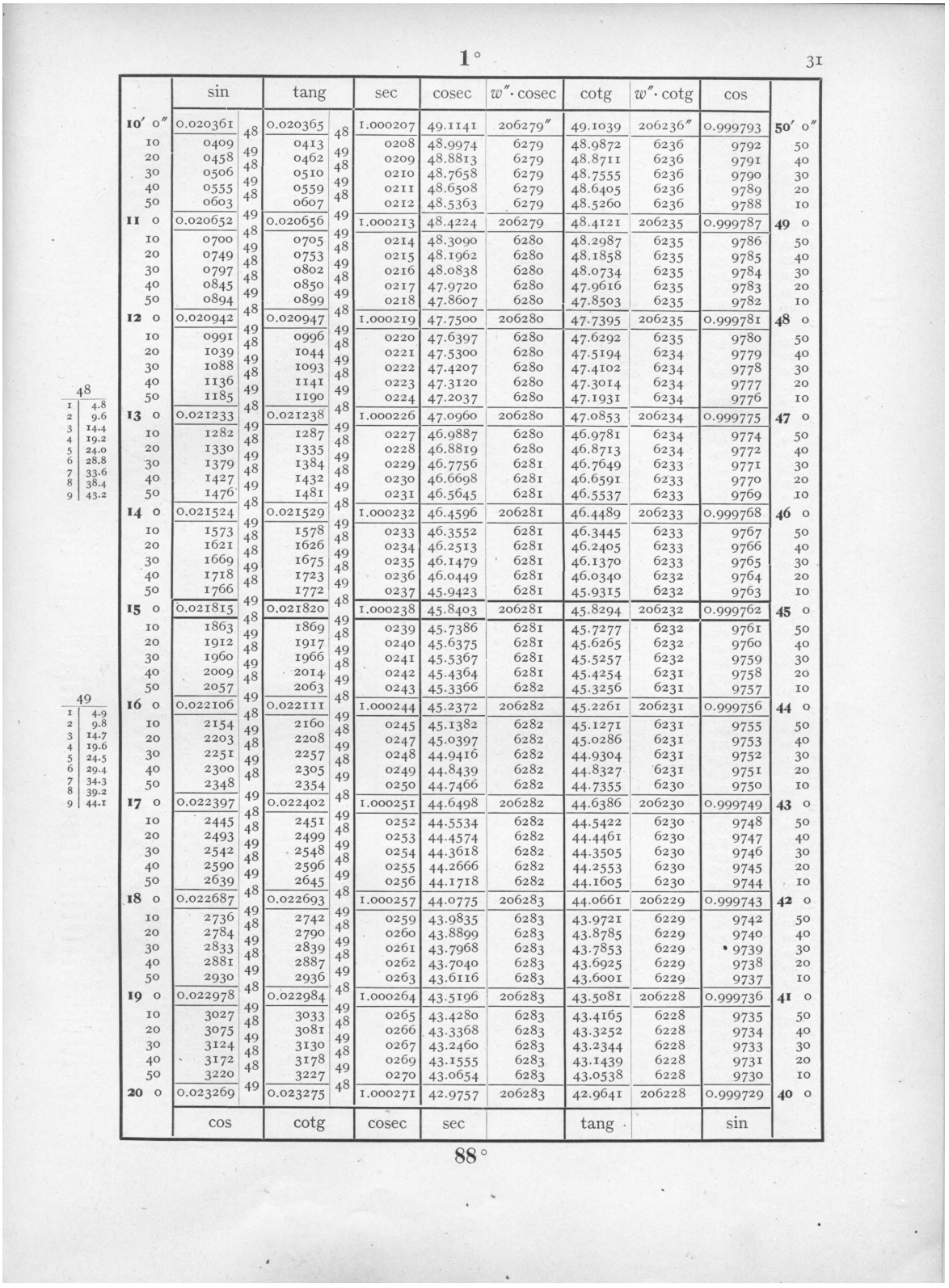
40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

60	
1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

tang 89°

Figure 1: Excerpt of Peters's table.



1°

31

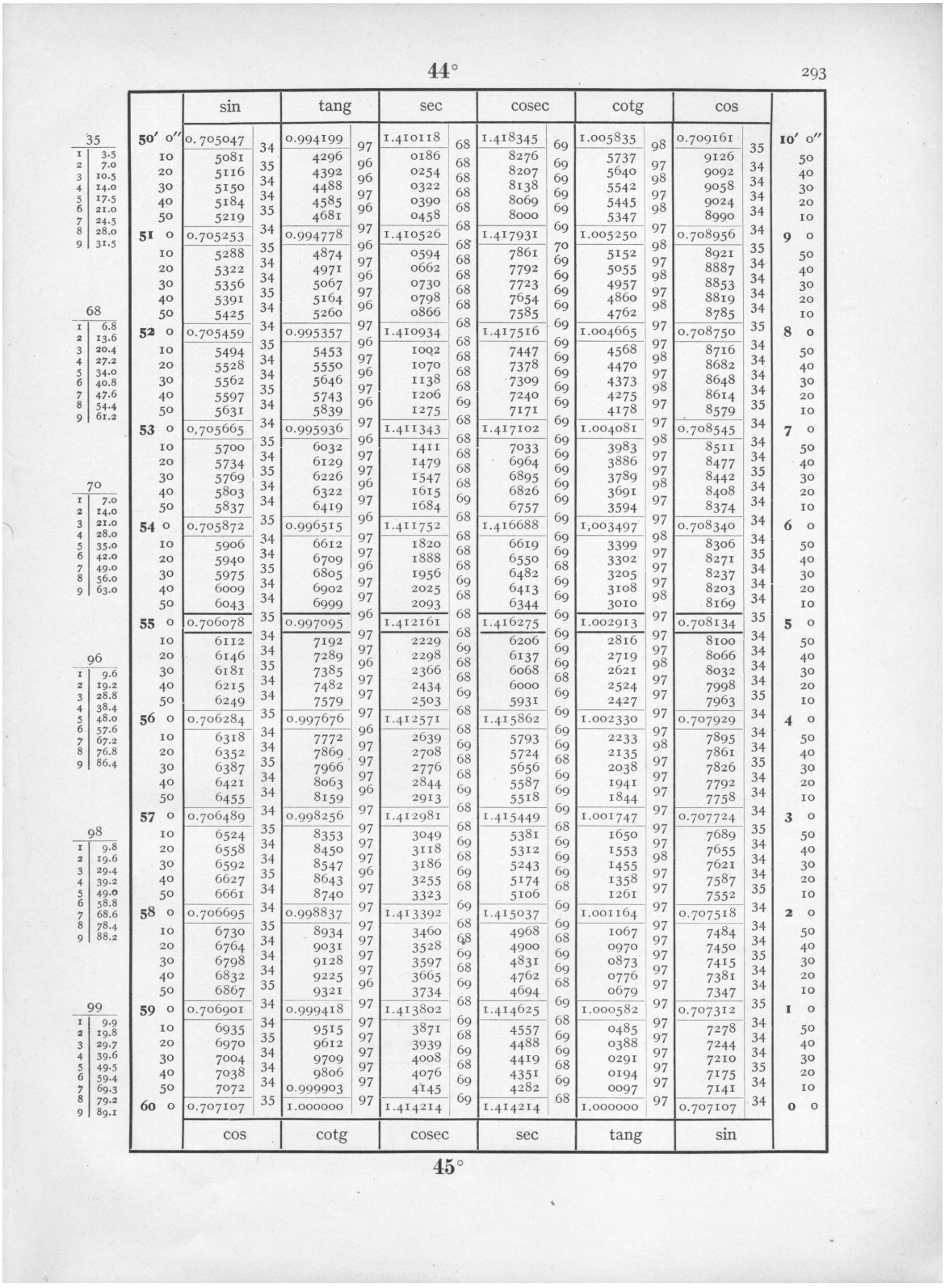
	sin		tang		sec	cosec	w'' · cosec	cotg	w'' · cotg	cos	
10′ 0″	0.020361	48	0.020365	48	1.000207	49.1141	206279″	49.1039	206236″	0.999793	50′ 0″
10	0409	49	0413	49	0208	48.9974	6279	48.9872	6236	9792	50
20	0458	48	0462	48	0209	48.8813	6279	48.8711	6236	9791	40
30	0506	49	0510	49	0210	48.7658	6279	48.7555	6236	9790	30
40	0555	48	0559	48	0211	48.6508	6279	48.6405	6236	9789	20
50	0603	49	0607	49	0212	48.5363	6279	48.5260	6236	9788	10
11 0	0.020652	48	0.020656	49	1.000213	48.4224	206279	48.4121	206235	0.999787	49 0
10	0700	49	0705	48	0214	48.3090	6280	48.2987	6235	9786	50
20	0749	48	0753	49	0215	48.1962	6280	48.1858	6235	9785	40
30	0797	48	0802	48	0216	48.0838	6280	48.0734	6235	9784	30
40	0845	49	0850	49	0217	47.9720	6280	47.9616	6235	9783	20
50	0894	48	0899	48	0218	47.8607	6280	47.8503	6235	9782	10
12 0	0.020942	49	0.020947	49	1.000219	47.7500	206280	47.7395	206235	0.99781	48 0
10	0991	48	0996	48	0220	47.6397	6280	47.6292	6235	9780	50
20	1039	49	1044	49	0221	47.5300	6280	47.5194	6234	9779	40
30	1088	48	1093	48	0222	47.4207	6280	47.4102	6234	9778	30
40	1136	49	1141	49	0223	47.3120	6280	47.3014	6234	9777	20
50	1185	48	1190	48	0224	47.2037	6280	47.1931	6234	9776	10
13 0	0.021233	49	0.021238	49	1.000226	47.0960	206280	47.0853	206234	0.999775	47 0
10	1282	48	1287	48	0227	46.9887	6280	46.9781	6234	9774	50
20	1330	49	1335	49	0228	46.8819	6280	46.8713	6234	9772	40
30	1379	48	1384	48	0229	46.7756	6281	46.7649	6233	9771	30
40	1427	49	1432	49	0230	46.6698	6281	46.6591	6233	9770	20
50	1476	48	1481	48	0231	46.5645	6281	46.5537	6233	9769	10
14 0	0.021524	49	0.021529	49	1.000232	46.4596	206281	46.4489	206233	0.999768	46 0
10	1573	48	1578	48	0233	46.3552	6281	46.3445	6233	9767	50
20	1621	48	1626	49	0234	46.2513	6281	46.2405	6233	9766	40
30	1669	49	1675	48	0235	46.1479	6281	46.1370	6233	9765	30
40	1718	48	1723	49	0236	46.0449	6281	46.0340	6232	9764	20
50	1766	49	1772	48	0237	45.9423	6281	45.9315	6232	9763	10
15 0	0.021815	48	0.021820	49	1.000238	45.8403	206281	45.8294	206232	0.999762	45 0
10	1863	49	1869	48	0239	45.7386	6281	45.7277	6232	9761	50
20	1912	48	1917	49	0240	45.6375	6281	45.6265	6232	9760	40
30	1960	49	1966	48	0241	45.5367	6281	45.5257	6232	9759	30
40	2009	48	2014	49	0242	45.4364	6281	45.4254	6231	9758	20
50	2057	49	2063	48	0243	45.3366	6282	45.3256	6231	9757	10
16 0	0.022106	48	0.022111	49	1.000244	45.2372	206282	45.2261	206231	0.999756	44 0
10	2154	49	2160	48	0245	45.1382	6282	45.1271	6231	9755	50
20	2203	48	2208	49	0247	45.0397	6282	45.0286	6231	9753	40
30	2251	49	2257	48	0248	44.9416	6282	44.9304	6231	9752	30
40	2300	48	2305	49	0249	44.8439	6282	44.8327	6231	9751	20
50	2348	49	2354	48	0250	44.7466	6282	44.7355	6230	9750	10
17 0	0.022397	48	0.022402	49	1.000251	44.6498	206282	44.6386	206230	0.999749	43 0
10	2445	48	2451	48	0252	44.5534	6282	44.5422	6230	9748	50
20	2493	49	2499	49	0253	44.4574	6282	44.4461	6230	9747	40
30	2542	48	2548	48	0254	44.3618	6282	44.3505	6230	9746	30
40	2590	49	2596	49	0255	44.2666	6282	44.2553	6230	9745	20
50	2639	48	2645	48	0256	44.1718	6282	44.1605	6230	9744	10
18 0	0.022687	49	0.022693	49	1.000257	44.0775	206283	44.0661	206229	0.999743	42 0
10	2736	48	2742	48	0259	43.9835	6283	43.9721	6229	9742	50
20	2784	49	2790	49	0260	43.8899	6283	43.8785	6229	9740	40
30	2833	48	2839	48	0261	43.7968	6283	43.7853	6229	9739	30
40	2881	49	2887	49	0262	43.7040	6283	43.6925	6229	9738	20
50	2930	48	2936	48	0263	43.6116	6283	43.6001	6229	9737	10
19 0	0.022978	49	0.022984	49	1.000264	43.5196	206283	43.5081	206228	0.999736	41 0
10	3027	48	3033	48	0265	43.4280	6283	43.4165	6228	9735	50
20	3075	49	3081	49	0266	43.3368	6283	43.3252	6228	9734	40
30	3124	48	3130	48	0267	43.2460	6283	43.2344	6228	9733	30
40	3172	48	3178	49	0269	43.1555	6283	43.1439	6228	9731	20
50	3220	49	3227	48	0270	43.0654	6283	43.0538	6228	9730	10
20 0	0.023269		0.023275		1.000271	42.9757	206283	42.9641	206228	0.999729	40 0
	cos		cotg		cosec	sec		tang		sin	

88°

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

Figure 2: Excerpt of Peters's table.



44° 293

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.705047	34	0.994199	97	1.410118	68	1.418345	69	1.005835	98	0.709161	35	10′ 0″
10	5081	35	4296	96	0186	68	8276	69	5737	97	9126	34	50
20	5116	34	4392	96	0254	68	8207	69	5640	98	9092	34	40
30	5150	34	4488	97	0322	68	8138	69	5542	97	9058	34	30
40	5184	35	4585	96	0390	68	8069	69	5445	98	9024	34	20
50	5219	34	4681	97	0458	68	8000	69	5347	97	8990	34	10
51 0	0.705253	35	0.994778	96	1.410526	68	1.417931	70	1.005250	98	0.708956	35	9 0
10	5288	34	4874	97	0594	68	7861	69	5152	97	8921	34	50
20	5322	34	4971	96	0662	68	7792	69	5055	98	8887	34	40
30	5356	35	5067	97	0730	68	7723	69	4957	97	8853	34	30
40	5391	34	5164	96	0798	68	7654	69	4860	98	8819	34	20
50	5425	34	5260	97	0866	68	7585	69	4762	97	8785	35	10
52 0	0.705459	35	0.995357	96	1.410934	68	1.417516	69	1.004665	97	0.708750	34	8 0
10	5494	34	5453	97	1092	68	7447	69	4568	98	8716	34	50
20	5528	34	5550	96	1070	68	7378	69	4470	97	8682	34	40
30	5562	35	5646	97	1138	68	7309	69	4373	98	8648	34	30
40	5597	34	5743	96	1206	69	7240	69	4275	97	8614	35	20
50	5631	34	5839	97	1275	68	7171	69	4178	97	8579	34	10
53 0	0,705665	35	0.995936	96	1.411343	68	1.417102	69	1.004081	98	0.708545	34	7 0
10	5700	34	6032	97	1411	68	7033	69	3983	97	8511	34	50
20	5734	35	6129	97	1479	68	6964	69	3886	97	8477	34	40
30	5769	34	6226	96	1547	68	6895	69	3789	98	8442	35	30
40	5803	34	6322	97	1615	69	6826	69	3691	97	8408	34	20
50	5837	35	6419	96	1684	68	6757	69	3594	97	8374	34	10
54 0	0.705872	34	0.996515	97	1.411752	68	1.416688	69	1,003497	98	0.708340	34	6 0
10	5906	34	6612	97	1820	68	6619	69	3399	97	8306	34	50
20	5940	35	6709	96	1888	68	6550	68	3302	97	8271	35	40
30	5975	34	6805	97	1956	69	6482	69	3205	97	8237	34	30
40	6009	34	6902	97	2025	68	6413	69	3108	98	8203	34	20
50	6043	35	6999	96	2093	68	6344	69	3010	97	8169	35	10
55 0	0.706078	34	0.997095	97	1.412161	68	1.416275	69	1.002913	97	0.708134	34	5 0
10	6112	34	7192	97	2229	69	6206	69	2816	97	8100	34	50
20	6146	35	7289	96	2298	68	6137	69	2719	98	8066	34	40
30	6181	34	7385	97	2366	68	6068	68	2621	97	8032	34	30
40	6215	34	7482	97	2434	69	6000	69	2524	97	7998	34	20
50	6249	35	7579	97	2503	68	5931	69	2427	97	7963	35	10
56 0	0.706284	34	0.997676	96	1.412571	68	1.415862	69	1.002330	97	0.707929	34	4 0
10	6318	34	7772	97	2639	69	5793	69	2233	98	7895	34	50
20	6352	34	7869	97	2708	68	5724	68	2135	97	7861	34	40
30	6387	35	7966	97	2776	68	5656	69	2038	97	7826	35	30
40	6421	34	8063	96	2844	69	5587	69	1941	97	7792	34	20
50	6455	34	8159	97	2913	68	5518	69	1844	97	7758	34	10
57 0	0.706489	35	0.998256	97	1.412981	68	1.415449	68	1.001747	97	0.707724	35	3 0
10	6524	34	8353	97	3049	69	5381	69	1650	97	7689	34	50
20	6558	34	8450	97	3118	68	5312	69	1553	98	7655	34	40
30	6592	35	8547	96	3186	69	5243	69	1455	97	7621	34	30
40	6627	34	8643	97	3255	68	5174	68	1358	97	7587	34	20
50	6661	34	8740	97	3323	69	5106	69	1261	97	7552	35	10
58 0	0.706695	35	0.998837	97	1.413392	68	1.415037	69	1.001164	97	0.707518	34	2 0
10	6730	34	8934	97	3460	68	4968	68	1067	97	7484	34	50
20	6764	34	9031	97	3528	69	4900	69	0970	97	7450	34	40
30	6798	34	9128	97	3597	68	4831	69	0873	97	7415	35	30
40	6832	35	9225	96	3665	69	4762	68	0776	97	7381	34	20
50	6867	34	9321	97	3734	68	4694	69	0679	97	7347	34	10
59 0	0.706901	34	0.999418	97	1.413802	69	1.414625	68	1.000582	97	0.707312	35	1 0
10	6935	35	9515	97	3871	68	4557	69	0485	97	7278	34	50
20	6970	34	9612	97	3939	69	4488	69	0388	97	7244	34	40
30	7004	34	9709	97	4008	68	4419	68	0291	97	7210	34	30
40	7038	34	9806	97	4076	69	4351	69	0194	97	7175	35	20
50	7072	34	0.999903	97	4145	69	4282	68	0097	97	7141	34	10
60 0	0.707107	35	1.000000	97	1.414214	69	1.414214	68	1.000000	97	0.707107	34	0 0
	cos		cotg		cosec		sec		tang		sin		

45°

35: 1 3.5, 2 7.0, 3 10.5, 4 14.0, 5 17.5, 6 21.0, 7 24.5, 8 28.0, 9 31.5

68: 1 6.8, 2 13.6, 3 20.4, 4 27.2, 5 34.0, 6 40.8, 7 47.6, 8 54.4, 9 61.2

70: 1 7.0, 2 14.0, 3 21.0, 4 28.0, 5 35.0, 6 42.0, 7 49.0, 8 56.0, 9 63.0

96: 1 9.6, 2 19.2, 3 28.8, 4 38.4, 5 48.0, 6 57.6, 7 67.2, 8 76.8, 9 86.4

98: 1 9.8, 2 19.6, 3 29.4, 4 39.2, 5 49.0, 6 58.8, 7 68.6, 8 78.4, 9 88.2

99: 1 9.9, 2 19.8, 3 29.7, 4 39.6, 5 49.5, 6 59.4, 7 69.3, 8 79.2, 9 89.1

Figure 3: Excerpt of Peters's table.

References

The following list covers the most important references[2] related to Peters's table. Not all items of this list are mentioned in the text, and the sources which have not been seen are marked so. We have added notes about the contents of the articles in certain cases.

[1] ???? On the eight-figure table of Peters and Comrie. *Mathematical Tables and other Aids to Computation*, 1(2):64–65, 1943. [The title is ours, and there are actually two notices, on the accuracy of the table published in 1939 [55], and its comparison with other tables.]

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[2] **Note on the titles of the works:** Original titles come with many idiosyncrasies and features (line splitting, size, fonts, etc.) which can often not be reproduced in a list of references. It has therefore seemed pointless to capitalize works according to conventions which not only have no relation with the original work, but also do not restore the title entirely. In the following list of references, most title words (except in German) will therefore be left uncapitalized. The names of the authors have also been homogenized and initials expanded, as much as possible.

The reader should keep in mind that this list is not meant as a facsimile of the original works. The original style information could no doubt have been added as a note, but we have not done it here.

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	0′	1′		2′		3′		4′		5′		6′		7′		
0″	∞	3438		1719		1145.9		859.4		687.5		573.0		491.1		**60″**
1	206265	3381	57	1705	14	1139.6	63	855.9	35	685.3	22	571.4	16	489.9	12	59
2	103132	3327	54	1691	14	1133.3	63	852.3	36	683.0	23	569.8	16	488.8	11	58
3	68755	3274	53	1677	14	1127.1	62	848.8	35	680.7	23	568.2	16	487.6	12	57
4	51566	3223	51	1663	14	1121.0	61	845.3	35	678.5	22	566.7	15	486.5	11	56
5	41253	3173	50	1650	13	1114.9	61	841.9	34	676.3	22	565.1	16	485.3	12	55
6	34377	3125	48	1637	13	1109.0	59	838.5	34	674.1	22	563.6	15	484.2	11	54
7	29466	3079	46	1624	13	1103.0	60	835.1	34	671.9	22	562.0	16	483.1	11	53
8	25783	3033	46	1611	13	1097.2	58	831.7	34	669.7	22	560.5	15	481.9	12	52
9	22918	2989	44	1599	12	1091.3	59	828.4	33	667.5	22	559.0	15	480.8	11	51
10	20626	2947	42	1587	12	1085.6	57	825.1	33	665.4	21	557.5	15	479.7	11	**50**
11	18751	2905	42	1575	12	1079.9	57	821.8	33	663.2	22	556.0	15	478.6	11	49
12	17189	2865	40	1563	12	1074.3	56	818.5	33	661.1	21	554.5	15	477.5	11	48
13	15867	2826	39	1551	12	1068.7	56	815.3	32	659.0	21	553.0	15	476.4	11	47
14	14733	2787	39	1539	12	1063.2	55	812.1	32	656.9	21	551.5	15	475.3	11	46
15	13751	2750	37	1528	11	1057.8	54	808.9	32	654.8	21	550.0	15	474.2	11	45
16	12892	2714	36	1517	11	1052.4	54	805.7	32	652.7	21	548.6	14	473.1	11	44
17	12133	2679	35	1506	11	1047.0	54	802.6	31	650.7	20	547.1	15	472.0	11	43
18	11459	2644	35	1495	11	1041.7	53	799.5	31	648.6	21	545.7	14	470.9	11	42
19	10856	2611	33	1484	11	1036.5	52	796.4	31	646.6	20	544.2	15	469.9	10	41
20	10313	2578	33	1473	11	1031.3	52	793.3	31	644.6	20	542.8	14	468.8	11	**40**
21	9822	2546	32	1463	10	1026.2	51	790.3	30	642.6	20	541.4	14	467.7	11	39
22	9376	2515	31	1453	10	1021.1	51	787.3	30	640.6	20	540.0	14	466.7	10	38
23	8968	2485	30	1442	11	1016.1	50	784.3	30	638.6	20	538.5	15	465.6	11	37
24	8594	2456	29	1432	10	1011.1	50	781.3	30	636.6	20	537.1	14	464.6	10	36
25	8251	2427	29	1423	9	1006.2	49	778.4	29	634.7	19	535.8	13	463.5	11	35
26	7933	2398	29	1413	10	1001.3	49	775.4	30	632.7	20	534.4	14	462.5	10	34
27	7639	2371	27	1403	10	996.4	49	772.5	29	630.8	19	533.0	14	461.4	11	33
28	7367	2344	27	1394	9	991.7	47	769.6	29	628.9	19	531.6	14	460.4	10	32
29	7113	2318	26	1384	10	986.9	48	766.8	28	626.9	20	530.2	14	459.4	10	31
30	6875	2292	26	1375	9	982.2	47	763.9	29	625.0	19	528.9	13	458.4	10	**30**
31	6654	2267	25	1366	9	977.6	46	761.1	28	623.2	18	527.5	14	457.3	11	29
32	6446	2242	25	1357	9	972.9	47	758.3	28	621.3	19	526.2	13	456.3	10	28
33	6250	2218	24	1348	9	968.4	45	755.5	28	619.4	19	524.8	14	455.3	10	27
34	6067	2194	24	1339	9	963.9	45	752.8	27	617.6	18	523.5	13	454.3	10	26
35	5893	2171	23	1331	8	959.4	45	750.1	27	615.7	19	522.2	13	453.3	10	25
36	5730	2149	22	1322	9	954.9	45	747.3	28	613.9	18	520.9	13	452.3	10	24
37	5575	2126	23	1314	8	950.5	44	744.6	27	612.1	18	519.6	13	451.3	10	23
38	5428	2105	21	1305	9	946.2	43	742.0	26	610.3	18	518.3	13	450.4	9	22
39	5289	2083	22	1297	8	941.8	44	739.3	27	608.5	18	517.0	13	449.4	10	21
40	5157	2063	20	1289	8	937.6	42	736.7	26	606.7	18	515.7	13	448.4	10	**20**
41	5031	2042	21	1281	8	933.3	43	734.0	27	604.9	18	514.4	13	447.4	10	19
42	4911	2022	20	1273	8	929.1	42	731.4	26	603.1	18	513.1	13	446.5	9	18
43	4797	2003	19	1265	8	925.0	41	728.9	25	601.4	17	511.8	13	445.5	10	17
44	4688	1983	20	1258	7	920.8	42	726.3	26	599.6	18	510.6	12	444.5	10	16
45	4584	1964	19	1250	8	916.7	41	723.7	26	597.9	17	509.3	13	443.6	9	15
46	4484	1946	18	1243	7	912.7	40	721.2	25	596.1	18	508.0	13	442.6	10	14
47	4389	1928	18	1235	8	908.7	40	718.7	25	594.4	17	506.8	12	441.7	9	13
48	4297	1910	18	1228	7	904.7	40	716.2	25	592.7	17	505.6	12	440.7	10	12
49	4209	1892	18	1221	7	900.7	40	713.7	25	591.0	17	504.3	13	439.8	9	11
50	4125	1875	17	1213	8	896.8	39	711.3	24	589.3	17	503.1	12	438.9	9	**10**
51	4044	1858	17	1206	7	892.9	39	708.8	25	587.6	17	501.9	12	437.9	10	9
52	3967	1842	16	1199	7	889.1	38	706.4	24	586.0	16	500.6	13	437.0	9	8
53	3892	1825	17	1192	7	885.3	38	704.0	24	584.3	17	499.4	12	436.1	9	7
54	3820	1809	16	1185	7	881.5	38	701.6	24	582.7	16	498.2	12	435.2	9	6
55	3750	1794	15	1179	6	877.7	38	699.2	24	581.0	17	497.0	12	434.2	10	5
56	3683	1778	16	1172	7	874.0	37	696.8	24	579.4	16	495.8	12	433.3	9	4
57	3619	1763	15	1165	7	870.3	37	694.5	23	577.8	16	494.6	12	432.4	9	3
58	3556	1748	15	1159	6	866.7	36	692.2	23	576.2	16	493.5	11	431.5	9	2
59	3496	1733	15	1152	7	863.0	37	689.8	24	574.6	16	492.3	12	430.6	9	1
60	3438	1719	14	1146	6	859.4	36	687.5	23	573.0	16	491.1	12	429.7	9	**0**
	59′	58′		57′		56′		55′		54′		53′		52′		

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5	8.5
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7	11.9
8	13.6
9	15.3

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

26	
1	2.6
2	5.2
3	7.8
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5	13.0
6	15.6
7	18.2
8	20.8
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1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
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7	21.0
8	24.0
9	27.0

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1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

50	
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2	10.0
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7	35.0
8	40.0
9	45.0

60	
1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

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	0′	1′		2′		3′		4′		5′		6′		7′		
0″	∞	3438		1719		1145.9		859.4		687.5		573.0		491.1		**60″**
1	206265	3381	57	1705	14	1139.6	63	855.9	35	685.3	22	571.4	16	489.9	12	59
2	103132	3327	54	1691	14	1133.3	63	852.3	36	683.0	23	569.8	16	488.8	11	58
3	68755	3274	53	1677	14	1127.1	62	848.8	35	680.7	23	568.2	16	487.6	12	57
4	51566	3223	51	1663	14	1121.0	61	845.3	35	678.5	22	566.7	15	486.5	11	56
5	41253	3173	50	1650	13	1114.9	61	841.9	34	676.3	22	565.1	16	485.3	12	55
6	34377	3125	48	1637	13	1109.0	59	838.5	34	674.1	22	563.6	15	484.2	11	54
7	29466	3079	46	1624	13	1103.0	60	835.1	34	671.9	22	562.0	16	483.1	11	53
8	25783	3033	46	1611	13	1097.2	58	831.7	34	669.7	22	560.5	15	481.9	12	52
9	22918	2989	44	1599	12	1091.3	59	828.4	33	667.5	22	559.0	15	480.8	11	51
10	20626	2947	42	1587	12	1085.6	57	825.1	33	665.4	21	557.5	15	479.7	11	**50**
11	18751	2905	42	1575	12	1079.9	57	821.8	33	663.2	22	556.0	15	478.6	11	49
12	17189	2865	40	1563	12	1074.3	56	818.5	33	661.1	21	554.5	15	477.5	11	48
13	15867	2826	39	1551	12	1068.7	56	815.3	32	659.0	21	553.0	15	476.4	11	47
14	14733	2787	39	1539	12	1063.2	55	812.1	32	656.9	21	551.5	15	475.3	11	46
15	13751	2750	37	1528	11	1057.8	54	808.9	32	654.8	21	550.0	15	474.2	11	45
16	12892	2714	36	1517	11	1052.4	54	805.7	32	652.7	21	548.6	14	473.1	11	44
17	12133	2679	35	1506	11	1047.0	54	802.6	31	650.7	20	547.1	15	472.0	11	43
18	11459	2644	35	1495	11	1041.7	53	799.5	31	648.6	21	545.7	14	470.9	11	42
19	10856	2611	33	1484	11	1036.5	52	796.4	31	646.6	20	544.2	15	469.9	10	41
20	10313	2578	33	1473	11	1031.3	52	793.3	31	644.6	20	542.8	14	468.8	11	**40**
21	9822	2546	32	1463	10	1026.2	51	790.3	30	642.6	20	541.4	14	467.7	11	39
22	9376	2515	31	1453	10	1021.1	51	787.3	30	640.6	20	540.0	14	466.7	10	38
23	8968	2485	30	1442	11	1016.1	50	784.3	30	638.6	20	538.6	14	465.6	11	37
24	8594	2456	29	1432	10	1011.1	50	781.3	30	636.6	20	537.1	15	464.6	10	36
25	8251	2427	29	1423	9	1006.2	49	778.4	29	634.7	19	535.8	13	463.5	11	35
26	7933	2398	29	1413	10	1001.3	49	775.4	30	632.7	20	534.4	14	462.5	10	34
27	7639	2371	27	1403	10	996.4	49	772.5	29	630.8	19	533.0	14	461.4	11	33
28	7367	2344	27	1394	9	991.7	47	769.6	29	628.9	19	531.6	14	460.4	10	32
29	7113	2318	26	1384	10	986.9	48	766.8	28	626.9	20	530.2	14	459.4	10	31
30	6875	2292	26	1375	9	982.2	47	763.9	29	625.0	19	528.9	13	458.4	10	**30**
31	6654	2267	25	1366	9	977.6	46	761.1	28	623.2	18	527.5	14	457.4	10	29
32	6446	2242	25	1357	9	972.9	47	758.3	28	621.3	19	526.2	13	456.3	11	28
33	6250	2218	24	1348	9	968.4	45	755.5	28	619.4	19	524.8	14	455.3	10	27
34	6067	2194	24	1339	9	963.9	45	752.8	27	617.6	18	523.5	13	454.3	10	26
35	5893	2171	23	1331	8	959.4	45	750.1	27	615.7	19	522.2	13	453.3	10	25
36	5730	2149	22	1322	9	954.9	45	747.3	28	613.9	18	520.9	13	452.3	10	24
37	5575	2126	23	1314	8	950.5	44	744.6	27	612.1	18	519.6	13	451.3	10	23
38	5428	2105	21	1305	9	946.2	43	742.0	26	610.3	18	518.3	13	450.4	9	22
39	5289	2083	22	1297	8	941.8	44	739.3	27	608.5	18	517.0	13	449.4	10	21
40	5157	2063	20	1289	8	937.6	42	736.7	26	606.7	18	515.7	13	448.4	10	**20**
41	5031	2042	21	1281	8	933.3	43	734.0	27	604.9	18	514.4	13	447.4	10	19
42	4911	2022	20	1273	8	929.1	42	731.4	26	603.1	18	513.1	13	446.5	9	18
43	4797	2003	19	1265	8	925.0	41	728.9	25	601.4	17	511.8	13	445.5	10	17
44	4688	1983	20	1258	7	920.8	42	726.3	26	599.6	18	510.6	12	444.5	10	16
45	4584	1964	19	1250	8	916.7	41	723.7	26	597.9	17	509.3	13	443.6	9	15
46	4484	1946	18	1243	7	912.7	40	721.2	25	596.1	18	508.0	13	442.6	10	14
47	4389	1928	18	1235	8	908.7	40	718.7	25	594.4	17	506.8	12	441.7	9	13
48	4297	1910	18	1228	7	904.7	40	716.2	25	592.7	17	505.6	12	440.7	10	12
49	4209	1892	18	1221	7	900.7	40	713.7	25	591.0	17	504.3	13	439.8	9	11
50	4125	1875	17	1213	8	896.8	39	711.3	24	589.3	17	503.1	12	438.9	9	**10**
51	4044	1858	17	1206	7	892.9	39	708.8	25	587.6	17	501.9	12	437.9	10	9
52	3967	1842	16	1199	7	889.1	38	706.4	24	586.0	16	500.6	13	437.0	9	8
53	3892	1825	17	1192	7	885.3	38	704.0	24	584.3	17	499.4	12	436.1	9	7
54	3820	1809	16	1185	7	881.5	38	701.6	24	582.7	16	498.2	12	435.2	9	6
55	3750	1794	15	1179	6	877.7	38	699.2	24	581.0	17	497.0	12	434.2	10	5
56	3683	1778	16	1172	7	874.0	37	696.8	24	579.4	16	495.8	12	433.3	9	4
57	3619	1763	15	1165	7	870.3	37	694.5	23	577.8	16	494.6	12	432.4	9	3
58	3556	1748	15	1159	6	866.7	36	692.2	23	576.2	16	493.5	11	431.5	9	2
59	3496	1733	15	1152	7	863.0	37	689.8	24	574.6	16	492.3	12	430.6	9	1
60	3438	1719	14	1146	6	859.4	36	687.5	23	573.0	16	491.1	12	429.7	9	**0**
	59′	58′		57′		56′		55′		54′		53′		52′		

sec 0°

14		20		24		28		35		45		55		63	
1	1.4	1	2.0	1	2.4	1	2.8	1	3.5	1	4.5	1	5.5	1	6.3
2	2.8	2	4.0	2	4.8	2	5.6	2	7.0	2	9.0	2	11.0	2	12.6
3	4.2	3	6.0	3	7.2	3	8.4	3	10.5	3	13.5	3	16.5	3	18.9
4	5.6	4	8.0	4	9.6	4	11.2	4	14.0	4	18.0	4	22.0	4	25.2
5	7.0	5	10.0	5	12.0	5	14.0	5	17.5	5	22.5	5	27.5	5	31.5
6	8.4	6	12.0	6	14.4	6	16.8	6	21.0	6	27.0	6	33.0	6	37.8
7	9.8	7	14.0	7	16.8	7	19.6	7	24.5	7	31.5	7	38.5	7	44.1
8	11.2	8	16.0	8	19.2	8	22.4	8	28.0	8	36.0	8	44.0	8	50.4
9	12.6	9	18.0	9	21.6	9	25.2	9	31.5	9	40.5	9	49.5	9	56.7

cotg 0°

	8′		9′		10′		11′		12′		13′		14′		15′		
0″	429.72		381.97		343.77		312.52		286.48		264.44		245.55		229.18		60″
1	428.82	90	381.26	71	343.20	57	312.05	47	286.08	40	264.10	34	245.26	29	228.93	25	59
2	427.93	89	380.56	70	342.63	57	311.58	47	285.68	40	263.76	34	244.97	29	228.67	26	58
3	427.05	88	379.86	70	342.06	57	311.11	47	285.29	39	263.43	33	244.68	29	228.42	25	57
4	426.17	88	379.16	70	341.50	56	310.64	47	284.89	40	263.09	34	244.39	29	228.17	25	56
5	425.29	88	378.47	69	340.93	57	310.17	47	284.50	39	262.76	33	244.10	29	227.92	25	55
6	424.41	87	377.77	70	340.37	56	309.71	46	284.11	39	262.42	34	243.81	29	227.66	26	54
7	423.54	87	377.08	69	339.81	56	309.24	47	283.72	39	262.09	33	243.52	29	227.41	25	53
8	422.67	87	376.39	69	339.25	56	308.78	46	283.33	39	261.76	33	243.24	28	227.16	25	52
9	421.81	86	375.71	68	338.69	56	308.32	46	282.94	39	261.42	34	242.95	29	226.91	25	51
10	420.95	86	375.03	68	338.14	55	307.86	46	282.55	39	261.09	33	242.66	29	226.66	25	50
11	420.09	86	374.35	68	337.58	56	307.40	46	282.17	38	260.76	33	242.38	28	226.41	25	49
12	419.24	85	373.67	68	337.03	55	306.94	46	281.78	39	260.43	33	242.09	29	226.17	24	48
13	418.39	85	372.99	68	336.48	55	306.48	46	281.40	38	260.11	32	241.81	28	225.92	25	47
14	417.54	85	372.32	67	335.94	54	306.03	45	281.01	39	259.78	33	241.53	28	225.67	25	46
15	416.70	84	371.65	67	335.39	55	305.58	45	280.63	38	259.45	33	241.24	29	225.42	25	45
16	415.86	84	370.98	67	334.84	55	305.12	46	280.25	38	259.13	32	240.96	28	225.18	24	44
17	415.02	84	370.31	67	334.30	54	304.67	45	279.87	38	258.80	33	240.68	28	224.93	25	43
18	414.19	83	369.65	66	333.76	54	304.22	45	279.49	38	258.48	32	240.40	28	224.69	24	42
19	413.36	83	368.99	66	333.22	54	303.78	44	279.11	38	258.15	33	240.12	28	224.44	25	41
20	412.53	83	368.33	66	332.68	54	303.33	45	278.74	37	257.83	32	239.84	28	224.20	24	40
21	411.71	82	367.67	66	332.15	53	302.88	45	278.36	38	257.51	32	239.56	28	223.96	24	39
22	410.89	82	367.02	65	331.61	54	302.44	44	277.98	38	257.19	32	239.28	28	223.71	25	38
23	410.07	82	366.37	65	331.08	53	302.00	44	277.61	37	256.87	32	239.01	27	223.47	24	37
24	409.25	82	365.72	65	330.55	53	301.56	44	277.24	37	256.55	32	238.73	28	223.23	24	36
25	408.44	81	365.07	65	330.02	53	301.12	44	276.86	38	256.23	32	238.46	27	222.99	24	35
26	407.64	80	364.42	65	329.50	52	300.68	44	276.49	37	255.91	32	238.18	28	222.75	24	34
27	406.83	81	363.78	64	328.97	53	300.24	44	276.12	37	255.59	32	237.90	28	222.51	24	33
28	406.03	80	363.14	64	328.45	52	299.80	44	275.75	37	255.28	31	237.63	27	222.27	24	32
29	405.23	80	362.50	64	327.92	53	299.37	43	275.39	36	254.96	32	237.36	27	222.03	24	31
30	404.44	79	361.87	63	327.40	52	298.93	44	275.02	37	254.65	31	237.08	28	221.79	24	30
31	403.65	79	361.23	64	326.88	52	298.50	43	274.65	37	254.33	32	236.81	27	221.55	24	29
32	402.86	79	360.60	63	326.37	51	298.07	43	274.29	36	254.02	31	236.54	27	221.31	24	28
33	402.07	79	359.97	63	325.85	52	297.64	43	273.92	37	253.71	31	236.27	27	221.08	23	27
34	401.29	78	359.35	62	325.34	51	297.21	43	273.56	36	253.40	31	236.00	27	220.84	24	26
35	400.51	78	358.72	63	324.83	51	296.78	43	273.20	36	253.08	32	235.73	27	220.60	24	25
36	399.74	77	358.10	62	324.31	52	296.36	42	272.84	36	252.77	31	235.46	27	220.37	23	24
37	398.96	78	357.48	62	323.81	50	295.93	43	272.48	36	252.46	31	235.19	27	220.13	24	23
38	398.19	77	356.86	62	323.30	51	295.51	42	272.12	36	252.16	30	234.92	27	219.90	23	22
39	397.43	76	356.24	62	322.79	51	295.08	43	271.76	36	251.85	31	234.66	26	219.66	24	21
40	396.66	77	355.63	61	322.29	50	294.66	42	271.40	36	251.54	31	234.39	27	219.43	23	20
41	395.90	76	355.02	61	321.78	51	294.24	42	271.04	36	251.23	31	234.12	27	219.20	23	19
42	395.14	76	354.41	61	321.28	50	293.82	42	270.69	35	250.93	30	233.86	26	218.96	24	18
43	394.39	75	353.80	61	320.78	50	293.41	41	270.33	36	250.62	31	233.59	27	218.73	23	17
44	393.63	76	353.19	60	320.29	49	292.99	42	269.98	35	250.32	30	233.33	26	218.50	23	16
45	392.88	75	352.59	60	319.79	50	292.57	42	269.63	35	250.02	30	233.07	26	218.27	23	15
46	392.14	74	351.99	60	319.29	50	292.16	41	269.27	36	249.71	31	232.80	27	218.04	23	14
47	391.39	75	351.39	60	318.80	49	291.75	41	268.92	35	249.41	30	232.54	26	217.81	23	13
48	390.65	74	350.79	60	318.31	49	291.33	42	268.57	35	249.11	30	232.28	26	217.58	23	12
49	389.91	74	350.19	60	317.82	49	290.92	41	268.22	35	248.81	30	232.02	26	217.35	23	11
50	389.18	73	349.60	59	317.33	49	290.51	41	267.88	34	248.51	30	231.76	26	217.12	23	10
51	388.45	73	349.01	59	316.84	49	290.10	41	267.53	35	248.21	30	231.50	26	216.89	23	9
52	387.71	74	348.42	59	316.36	48	289.70	40	267.18	35	247.91	30	231.24	26	216.66	23	8
53	386.99	72	347.83	59	315.87	49	289.29	41	266.84	34	247.62	29	230.98	26	216.44	22	7
54	386.26	73	347.25	58	315.39	48	288.89	40	266.49	35	247.32	30	230.72	26	216.21	23	6
55	385.54	72	346.66	59	314.91	48	288.48	41	266.15	34	247.02	30	230.46	26	215.98	23	5
56	384.82	72	346.08	58	314.43	48	288.08	40	265.80	35	246.73	29	230.20	26	215.76	22	4
57	384.10	72	345.50	58	313.95	48	287.68	40	265.46	34	246.43	30	229.95	25	215.53	23	3
58	383.39	71	344.92	58	313.47	48	287.28	40	265.12	34	246.14	29	229.69	26	215.31	22	2
59	382.68	71	344.35	57	313.00	47	286.88	40	264.78	34	245.84	30	229.44	25	215.08	23	1
60	381.97	71	343.77	58	312.52	48	286.48	40	264.44	34	245.55	29	229.18	26	214.86	22	0
	51′		50′		49′		48′		47′		46′		45′		44′		

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

27	
1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

35	
1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

65	
1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

75	
1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

85	
1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

tang 89°

cosec 0°

	8′		9′		10′		11′		12′		13′		14′		15′		
0″	429.72	89	381.97	70	343.78	58	312.52	47	286.48	40	264.44	34	245.55	29	229.18	25	**60″**
1	428.83	89	381.27	71	343.20	57	312.05	47	286.08	39	264.10	33	245.26	29	228.93	25	59
2	427.94	89	380.56	70	342.63	57	311.58	47	285.69	40	263.77	34	244.97	29	228.68	26	58
3	427.05	88	379.86	70	342.06	56	311.11	47	285.29	39	263.43	34	244.68	29	228.42	25	57
4	426.17	88	379.16	69	341.50	57	310.64	47	284.90	39	263.09	34	244.39	29	228.17	25	56
5	425.29	88	378.47	70	340.93	56	310.17	46	284.50	40	262.76	33	244.10	29	227.92	25	55
6	424.41	87	377.77	69	340.37	56	309.71	47	284.11	39	262.42	34	243.81	29	227.67	25	54
7	423.54	87	377.08	68	339.81	56	309.24	46	283.72	39	262.09	33	243.52	29	227.42	25	53
8	422.67	86	376.40	69	339.25	56	308.78	46	283.33	39	261.76	33	243.24	28	227.16	26	52
9	421.81	86	375.71	68	338.69	56	308.32	46	282.94	39	261.43	33	242.95	29	226.91	25	51
10	420.95	86	375.03	68	338.14	55	307.86	46	282.56	38	261.10	33	242.67	28	226.67	24	**50**
11	420.09	86	374.35	68	337.59	55	307.40	46	282.17	39	260.77	33	242.38	29	226.42	25	49
12	419.24	85	373.67	68	337.03	56	306.94	46	281.78	39	260.44	33	242.10	28	226.17	25	48
13	418.39	85	372.99	68	336.48	55	306.49	45	281.40	38	260.11	33	241.81	29	225.92	25	47
14	417.54	85	372.32	67	335.94	54	306.03	46	281.02	38	259.78	33	241.53	28	225.67	25	46
15	416.70	84	371.65	67	335.39	55	305.58	45	280.63	39	259.45	33	241.25	28	225.43	24	45
16	415.86	84	370.98	67	334.85	54	305.13	45	280.25	38	259.13	32	240.96	29	225.18	25	44
17	415.02	84	370.31	67	334.30	55	304.68	45	279.87	38	258.80	33	240.68	28	224.94	24	43
18	414.19	83	369.65	66	333.76	54	304.23	45	279.49	38	258.48	32	240.40	28	224.69	25	42
19	413.36	83	368.99	66	333.22	54	303.78	45	279.11	38	258.15	33	240.12	28	224.45	24	41
20	412.53	83	368.33	66	332.69	53	303.33	45	278.74	37	257.83	32	239.84	28	224.20	25	**40**
21	411.71	82	367.67	66	332.15	54	302.89	44	278.36	38	257.51	32	239.56	28	223.96	24	39
22	410.89	82	367.02	65	331.62	53	302.44	45	277.99	37	257.19	32	239.29	27	223.72	24	38
23	410.07	82	366.37	65	331.08	54	302.00	44	277.61	38	256.87	32	239.01	28	223.47	25	37
24	409.26	81	365.72	65	330.55	53	301.56	44	277.24	37	256.55	32	238.73	28	223.23	24	36
25	408.45	81	365.07	65	330.02	53	301.12	44	276.87	37	256.23	32	238.46	27	222.99	24	35
26	407.64	81	364.43	64	329.50	52	300.68	44	276.49	38	255.91	32	238.18	28	222.75	24	34
27	406.83	81	363.78	65	328.97	53	300.24	44	276.12	37	255.60	31	237.91	27	222.51	24	33
28	406.03	80	363.14	64	328.45	52	299.80	44	275.76	36	255.28	32	237.63	28	222.27	24	32
29	405.24	79	362.50	64	327.93	52	299.37	43	275.39	37	254.96	32	237.36	27	222.03	24	31
30	404.44	80	361.87	63	327.40	53	298.94	43	275.02	37	254.65	31	237.09	27	221.79	24	**30**
31	403.65	79	361.23	64	326.89	51	298.50	44	274.65	37	254.33	32	236.81	28	221.55	24	29
32	402.86	79	360.60	63	326.37	52	298.07	43	274.29	36	254.02	31	236.54	27	221.31	24	28
33	402.08	78	359.97	63	325.85	52	297.64	43	273.92	37	253.71	31	236.27	27	221.08	23	27
34	401.29	79	359.35	62	325.34	51	297.21	43	273.56	36	253.40	31	236.00	27	220.84	24	26
35	400.51	78	358.72	63	324.83	51	296.78	43	273.20	36	253.09	31	235.73	27	220.60	24	25
36	399.74	77	358.10	62	324.32	51	296.36	42	272.84	36	252.78	31	235.46	27	220.37	23	24
37	398.97	77	357.48	62	323.81	51	295.93	43	272.48	36	252.47	31	235.19	27	220.13	24	23
38	398.20	77	356.86	62	323.30	51	295.51	42	272.12	36	252.16	31	234.93	26	219.90	23	22
39	397.43	77	356.24	61	322.79	51	295.09	42	271.76	36	251.85	31	234.66	27	219.67	23	21
40	396.66	77	355.63	61	322.29	50	294.66	43	271.40	36	251.54	31	234.39	27	219.43	24	**20**
41	395.90	76	355.02	61	321.79	50	294.24	42	271.05	35	251.24	30	234.13	26	219.20	23	19
42	395.14	76	354.41	61	321.29	50	293.83	41	270.69	36	250.93	31	233.86	27	218.97	23	18
43	394.39	75	353.80	61	320.79	50	293.41	42	270.33	36	250.63	30	233.60	26	218.73	24	17
44	393.64	75	353.19	61	320.29	50	292.99	42	269.98	35	250.32	31	233.33	27	218.50	23	16
45	392.89	75	352.59	60	319.79	50	292.57	42	269.63	35	250.02	30	233.07	26	218.27	23	15
46	392.14	75	351.99	60	319.30	49	292.16	41	269.28	35	249.72	30	232.81	26	218.04	23	14
47	391.39	75	351.39	60	318.80	50	291.75	41	268.92	36	249.41	31	232.54	27	217.81	23	13
48	390.65	74	350.79	60	318.31	49	291.34	41	268.57	35	249.11	30	232.28	26	217.58	23	12
49	389.91	74	350.20	59	317.82	49	290.92	42	268.23	34	248.81	30	232.02	26	217.35	23	11
50	389.18	73	349.60	60	317.33	49	290.51	41	267.88	35	248.51	30	231.76	26	217.12	23	**10**
51	388.45	73	349.01	59	316.84	49	290.11	40	267.53	35	248.21	30	231.50	26	216.89	23	9
52	387.72	73	348.42	59	316.36	48	289.70	41	267.18	35	247.92	29	231.24	26	216.67	22	8
53	386.99	73	347.83	59	315.87	49	289.29	41	266.84	34	247.62	30	230.98	26	216.44	23	7
54	386.26	73	347.25	58	315.39	48	288.89	40	266.49	35	247.32	30	230.72	26	216.21	23	6
55	385.54	72	346.66	59	314.91	48	288.48	41	266.15	34	247.02	30	230.46	26	215.98	23	5
56	384.82	72	346.08	58	314.43	48	288.08	40	265.81	34	246.73	29	230.21	25	215.76	22	4
57	384.11	71	345.50	58	313.95	48	287.68	40	265.46	35	246.43	30	229.95	26	215.53	23	3
58	383.39	72	344.92	58	313.47	48	287.28	40	265.12	34	246.14	29	229.69	26	215.31	22	2
59	382.68	71	344.35	57	313.00	47	286.88	40	264.78	34	245.85	29	229.44	25	215.08	23	1
60	381.97	71	343.78	57	312.52	48	286.48	40	264.44	34	245.55	30	229.18	26	214.86	22	**0**
	51′		50′		49′		48′		47′		46′		45′		44′		

24		30		40		50		60		70		80		90	
1	2.4	1	3.0	1	4.0	1	5.0	1	6.0	1	7.0	1	8.0	1	9.0
2	4.8	2	6.0	2	8.0	2	10.0	2	12.0	2	14.0	2	16.0	2	18.0
3	7.2	3	9.0	3	12.0	3	15.0	3	18.0	3	21.0	3	24.0	3	27.0
4	9.6	4	12.0	4	16.0	4	20.0	4	24.0	4	28.0	4	32.0	4	36.0
5	12.0	5	15.0	5	20.0	5	25.0	5	30.0	5	35.0	5	40.0	5	45.0
6	14.4	6	18.0	6	24.0	6	30.0	6	36.0	6	42.0	6	48.0	6	54.0
7	16.8	7	21.0	7	28.0	7	35.0	7	42.0	7	49.0	7	56.0	7	63.0
8	19.2	8	24.0	8	32.0	8	40.0	8	48.0	8	56.0	8	64.0	8	72.0
9	21.6	9	27.0	9	36.0	9	45.0	9	54.0	9	63.0	9	72.0	9	81.0

sec 89°

cotg 0°

	16′		17′		18′		19′		20′		21′		22′		23′		
0″	214.86		202.22		190.98		180.93		171.89		163.70		156.26		149.47		60″
1	214.63	23	202.02	20	190.81	17	180.77	16	171.74	15	163.57	13	156.14	12	149.36	11	59
2	214.41	22	201.82	20	190.63	18	180.62	15	171.60	14	163.44	13	156.02	12	149.25	11	58
3	214.19	22	201.63	19	190.46	17	180.46	16	171.46	14	163.31	13	155.90	12	149.14	11	57
4	213.97	22	201.43	20	190.28	18	180.30	16	171.31	15	163.18	13	155.79	11	149.03	11	56
5	213.74	23	201.23	20	190.10	18	180.14	16	171.17	14	163.05	13	155.67	12	148.93	10	55
6	213.52	22	201.04	19	189.93	17	179.98	16	171.03	14	162.92	13	155.55	12	148.82	11	54
7	213.30	22	200.84	20	189.75	18	179.83	15	170.89	14	162.80	12	155.43	12	148.71	11	53
8	213.08	22	200.65	19	189.58	17	179.67	16	170.75	14	162.67	13	155.32	11	148.60	11	52
9	212.86	22	200.45	20	189.41	17	179.51	16	170.61	14	162.54	13	155.20	12	148.50	10	51
10	212.64	22	200.26	19	189.23	18	179.36	15	170.46	15	162.41	13	155.08	12	148.39	11	50
11	212.42	22	200.06	20	189.06	17	179.20	16	170.32	14	162.28	13	154.97	11	148.28	11	49
12	212.21	21	199.87	19	188.89	17	179.05	15	170.18	14	162.16	12	154.85	12	148.18	10	48
13	211.99	22	199.67	20	188.71	18	178.89	16	170.04	14	162.03	13	154.74	11	148.07	11	47
14	211.77	22	199.48	19	188.54	17	178.74	15	169.90	14	161.90	13	154.62	12	147.96	11	46
15	211.55	22	199.29	19	188.37	17	178.58	16	169.76	14	161.77	13	154.50	12	147.86	10	45
16	211.34	21	199.10	19	188.20	17	178.43	15	169.62	14	161.65	12	154.39	11	147.75	11	44
17	211.12	22	198.90	20	188.02	18	178.27	16	169.48	14	161.52	13	154.27	12	147.65	10	43
18	210.90	22	198.71	19	187.85	17	178.12	15	169.35	13	161.39	13	154.16	11	147.54	11	42
19	210.69	21	198.52	19	187.68	17	177.97	15	169.21	14	161.27	12	154.04	12	147.44	10	41
20	210.47	22	198.33	19	187.51	17	177.81	16	169.07	14	161.14	13	153.93	11	147.33	11	40
21	210.26	21	198.14	19	187.34	17	177.66	15	168.93	14	161.02	12	153.81	12	147.22	11	39
22	210.04	22	197.95	19	187.17	17	177.51	15	168.79	14	160.89	13	153.70	11	147.12	10	38
23	209.83	21	197.76	19	187.00	17	177.35	16	168.65	14	160.77	12	153.58	12	147.01	11	37
24	209.62	21	197.57	19	186.83	17	177.20	15	168.52	13	160.64	13	153.47	11	146.91	10	36
25	209.40	22	197.38	19	186.66	17	177.05	15	168.38	14	160.52	12	153.35	12	146.81	10	35
26	209.19	21	197.19	19	186.49	17	176.90	15	168.24	14	160.39	13	153.24	11	146.70	11	34
27	208.98	21	197.00	19	186.33	16	176.75	15	168.10	14	160.27	12	153.13	11	146.60	10	33
28	208.77	21	196.82	18	186.16	17	176.59	16	167.97	13	160.14	13	153.01	12	146.49	11	32
29	208.56	21	196.63	19	185.99	17	176.44	15	167.83	14	160.02	12	152.90	11	146.39	10	31
30	208.35	21	196.44	19	185.82	17	176.29	15	167.69	14	159.89	13	152.79	11	146.28	11	30
31	208.14	21	196.25	19	185.66	16	176.14	15	167.56	13	159.77	12	152.67	12	146.18	10	29
32	207.93	21	196.07	18	185.49	17	175.99	15	167.42	14	159.65	12	152.56	11	146.08	10	28
33	207.72	21	195.88	19	185.32	17	175.84	15	167.28	14	159.52	13	152.45	11	145.97	11	27
34	207.51	21	195.70	18	185.16	16	175.69	15	167.15	13	159.40	12	152.34	11	145.87	10	26
35	207.30	21	195.51	19	184.99	17	175.54	15	167.01	14	159.28	12	152.22	12	145.77	10	25
36	207.09	21	195.32	19	184.82	17	175.39	15	166.88	13	159.15	13	152.11	11	145.66	11	24
37	206.88	21	195.14	18	184.66	16	175.24	15	166.74	14	159.03	12	152.00	11	145.56	10	23
38	206.68	20	194.96	18	184.49	17	175.10	14	166.61	13	158.91	12	151.89	11	145.46	10	22
39	206.47	21	194.77	19	184.33	16	174.95	15	166.47	14	158.79	12	151.77	12	145.36	10	21
40	206.26	21	194.59	18	184.16	17	174.80	15	166.34	13	158.66	13	151.66	11	145.25	11	20
41	206.06	20	194.40	19	184.00	16	174.65	15	166.21	13	158.54	12	151.55	11	145.15	10	19
42	205.85	21	194.22	18	183.83	17	174.50	15	166.07	14	158.42	12	151.44	11	145.05	10	18
43	205.65	20	194.04	18	183.67	16	174.36	14	165.94	13	158.30	12	151.33	11	144.95	10	17
44	205.44	21	193.86	18	183.51	16	174.21	15	165.81	13	158.18	12	151.22	11	144.85	10	16
45	205.24	20	193.67	19	183.34	17	174.06	15	165.67	14	158.06	12	151.11	11	144.74	11	15
46	205.03	21	193.49	18	183.18	16	173.91	15	165.54	13	157.93	13	151.00	11	144.64	10	14
47	204.83	20	193.31	18	183.02	16	173.77	14	165.41	13	157.81	12	150.89	11	144.54	10	13
48	204.63	20	193.13	18	182.86	16	173.62	15	165.27	14	157.69	12	150.78	11	144.44	10	12
49	204.42	21	192.95	18	182.70	16	173.48	14	165.14	13	157.57	12	150.67	11	144.34	10	11
50	204.22	20	192.77	18	182.53	17	173.33	15	165.01	13	157.45	12	150.56	11	144.24	10	10
51	204.02	20	192.59	18	182.37	16	173.18	15	164.88	13	157.33	12	150.45	11	144.14	10	9
52	203.82	20	192.41	18	182.21	16	173.04	14	164.75	13	157.21	12	150.34	11	144.04	10	8
53	203.62	20	192.23	18	182.05	16	172.89	15	164.61	14	157.09	12	150.23	11	143.94	10	7
54	203.42	20	192.05	18	181.89	16	172.75	14	164.48	13	156.97	12	150.12	11	143.84	10	6
55	203.21	21	191.87	18	181.73	16	172.60	15	164.35	13	156.85	12	150.01	11	143.74	10	5
56	203.01	20	191.69	18	181.57	16	172.46	14	164.22	13	156.73	12	149.90	11	143.64	10	4
57	202.82	19	191.52	17	181.41	16	172.32	14	164.09	13	156.62	11	149.79	11	143.54	10	3
58	202.62	20	191.34	18	181.25	16	172.17	15	163.96	13	156.50	12	149.68	11	143.44	10	2
59	202.42	20	191.16	18	181.09	16	172.03	14	163.83	13	156.38	12	149.57	11	143.34	10	1
60	202.22	20	190.98	18	180.93	16	171.89	14	163.70	13	156.26	12	149.47	10	143.24	10	0
	43′		42′		41′		40′		39′		38′		37′		36′		

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15	
1	1.5
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4	6.0
5	7.5
6	9.0
7	10.5
8	12.0
9	13.5

17	
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3	5.1
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5	8.5
6	10.2
7	11.9
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9	15.3

18	
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3	5.4
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5	9.0
6	10.8
7	12.6
8	14.4
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tang 89°

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	16′		17′		18′		19′		20′		21′		22′		23′		
0″	214.86		202.22		190.99		180.93		171.89		163.70		156.26		149.47		**60″**
1	214.64	22	202.02	20	190.81	18	180.78	15	171.75	14	163.57	13	156.14	12	149.36	11	59
2	214.41	23	201.83	19	190.63	18	180.62	16	171.60	15	163.44	13	156.03	11	149.25	11	58
3	214.19	22	201.63	20	190.46	17	180.46	16	171.46	14	163.31	13	155.91	12	149.14	11	57
4	213.97	22	201.43	20	190.28	18	180.30	16	171.32	14	163.19	12	155.79	12	149.04	10	56
5	213.75	22	201.23	20	190.11	17	180.14	16	171.18	14	163.06	13	155.67	12	148.93	11	55
6	213.53	22	201.04	19	189.93	18	179.99	15	171.03	15	162.93	13	155.56	11	148.82	11	54
7	213.30	23	200.84	20	189.76	17	179.83	16	170.89	14	162.80	13	155.44	12	148.71	11	53
8	213.08	22	200.65	19	189.58	18	179.67	16	170.75	14	162.67	13	155.32	12	148.61	10	52
9	212.86	22	200.45	20	189.41	17	179.52	15	170.61	14	162.54	13	155.20	12	148.50	11	51
10	212.64	22	200.26	19	189.23	18	179.36	16	170.47	14	162.41	13	155.09	11	148.39	11	**50**
11	212.43	21	200.06	20	189.06	17	179.21	15	170.33	14	162.29	12	154.97	12	148.29	10	49
12	212.21	22	199.87	19	188.89	17	179.05	16	170.19	14	162.16	13	154.85	12	148.18	11	48
13	211.99	22	199.68	19	188.72	17	178.89	16	170.05	14	162.03	13	154.74	11	148.07	11	47
14	211.77	22	199.48	20	188.54	18	178.74	15	169.91	14	161.90	13	154.62	12	147.97	10	46
15	211.55	21	199.29	19	188.37	17	178.59	15	169.77	14	161.78	12	154.51	11	147.86	11	45
16	211.34	22	199.10	19	188.20	17	178.43	16	169.63	14	161.65	13	154.39	12	147.76	10	44
17	211.12	22	198.91	19	188.03	17	178.28	15	169.49	14	161.52	13	154.28	11	147.65	11	43
18	210.91	21	198.71	20	187.86	17	178.12	16	169.35	14	161.40	12	154.16	12	147.54	11	42
19	210.69	22	198.52	19	187.68	18	177.97	15	169.21	14	161.27	13	154.04	12	147.44	10	41
20	210.48	21	198.33	19	187.51	17	177.82	15	169.07	14	161.15	12	153.93	11	147.33	11	**40**
21	210.26	22	198.14	19	187.34	17	177.66	16	168.93	14	161.02	13	153.82	11	147.23	10	39
22	210.05	21	197.95	19	187.17	17	177.51	15	168.79	14	160.89	13	153.70	12	147.12	11	38
23	209.83	22	197.76	19	187.00	17	177.36	15	168.66	13	160.77	12	153.59	11	147.02	10	37
24	209.62	21	197.57	19	186.83	17	177.20	16	168.52	14	160.64	13	153.47	12	146.91	11	36
25	209.41	21	197.38	19	186.67	16	177.05	15	168.38	14	160.52	12	153.36	11	146.81	10	35
26	209.19	22	197.19	19	186.50	17	176.90	15	168.24	14	160.39	13	153.24	12	146.70	11	34
27	208.98	21	197.01	18	186.33	17	176.75	15	168.11	13	160.27	12	153.13	11	146.60	10	33
28	208.77	21	196.82	19	186.16	17	176.60	15	167.97	14	160.14	13	153.02	11	146.50	10	32
29	208.56	21	196.63	19	185.99	17	176.45	15	167.83	14	160.02	12	152.90	12	146.39	11	31
30	208.35	21	196.44	19	185.83	16	176.30	15	167.70	13	159.90	12	152.79	11	146.29	10	**30**
31	208.14	21	196.26	18	185.66	17	176.15	15	167.56	14	159.77	13	152.68	11	146.18	11	29
32	207.93	21	196.07	19	185.49	17	175.99	16	167.42	14	159.65	12	152.56	12	146.08	10	28
33	207.72	21	195.88	19	185.32	17	175.84	15	167.29	13	159.53	12	152.45	11	145.98	10	27
34	207.51	21	195.70	18	185.16	16	175.69	15	167.15	14	159.40	13	152.34	11	145.87	11	26
35	207.30	21	195.51	19	184.99	17	175.55	14	167.02	13	159.28	12	152.23	11	145.77	10	25
36	207.09	21	195.33	18	184.83	16	175.40	15	166.88	14	159.16	12	152.11	12	145.67	10	24
37	206.89	20	195.14	19	184.66	17	175.25	15	166.75	13	159.03	13	152.00	11	145.57	10	23
38	206.68	21	194.96	18	184.50	16	175.10	15	166.61	14	158.91	12	151.89	11	145.46	11	22
39	206.47	21	194.77	19	184.33	17	174.95	15	166.48	13	158.79	12	151.78	11	145.36	10	21
40	206.27	20	194.59	18	184.17	16	174.80	15	166.34	14	158.67	12	151.67	11	145.26	10	**20**
41	206.06	21	194.41	18	184.00	17	174.65	15	166.21	13	158.54	13	151.55	12	145.16	10	19
42	205.85	21	194.22	19	183.84	16	174.51	14	166.08	13	158.42	12	151.44	11	145.05	11	18
43	205.65	20	194.04	18	183.67	17	174.36	15	165.94	14	158.30	12	151.33	11	144.95	10	17
44	205.44	21	193.86	18	183.51	16	174.21	15	165.81	13	158.18	12	151.22	11	144.85	10	16
45	205.24	20	193.68	18	183.35	16	174.06	15	165.68	13	158.06	12	151.11	11	144.75	10	15
46	205.04	20	193.50	18	183.18	17	173.92	14	165.54	14	157.94	12	151.00	11	144.65	10	14
47	204.83	21	193.31	19	183.02	16	173.77	15	165.41	13	157.82	12	150.89	11	144.55	10	13
48	204.63	20	193.13	18	182.86	16	173.62	15	165.28	13	157.70	12	150.78	11	144.44	11	12
49	204.43	20	192.95	18	182.70	16	173.48	14	165.14	14	157.58	12	150.67	11	144.34	10	11
50	204.22	21	192.77	18	182.54	16	173.33	15	165.01	13	157.46	12	150.56	11	144.24	10	**10**
51	204.02	20	192.59	18	182.37	17	173.19	14	164.88	13	157.34	12	150.45	11	144.14	10	9
52	203.82	20	192.41	18	182.21	16	173.04	15	164.75	13	157.22	12	150.34	11	144.04	10	8
53	203.62	20	192.23	18	182.05	16	172.90	14	164.62	13	157.10	12	150.23	11	143.94	10	7
54	203.42	20	192.05	18	181.89	16	172.75	15	164.49	13	156.98	12	150.12	11	143.84	10	6
55	203.22	20	191.88	17	181.73	16	172.61	14	164.36	13	156.86	12	150.01	11	143.74	10	5
56	203.02	20	191.70	18	181.57	16	172.46	15	164.22	14	156.74	12	149.90	11	143.64	10	4
57	202.82	20	191.52	18	181.41	16	172.32	14	164.09	13	156.62	12	149.79	11	143.54	10	3
58	202.62	20	191.34	18	181.25	16	172.18	14	163.96	13	156.50	12	149.69	10	143.44	10	2
59	202.42	20	191.16	18	181.09	16	172.03	15	163.83	13	156.38	12	149.58	11	143.34	10	1
60	202.22	20	190.99	17	180.93	16	171.89	14	163.70	13	156.26	12	149.47	11	143.24	10	**0**
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sec 89°

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	24′		25′		26′		27′		28′		29′		30′		31′		
0″	143.237		137.507		132.219		127.321		122.774		118.540		114.589		110.892		60″
1	138	99	416	91	134	85	243	78	701	73	472	68	525	64	832	60	59
2	143.038	100	324	92	132.049	85	164	79	628	73	404	68	461	64	773	59	58
3	142.939	99	233	91	131.965	84	086	78	555	73	336	68	398	63	713	60	57
4	840	99	142	91	880	85	127.008	78	482	73	268	68	335	63	654	59	56
5	741	99	137.051	91	796	84	126.930	78	410	72	201	67	271	64	595	59	55
6	643	98	136.960	91	712	84	851	79	337	73	133	68	208	63	535	60	54
7	544	99	869	91	628	84	774	77	264	73	118.065	68	145	63	476	59	53
8	446	98	778	91	544	84	696	78	192	72	117.998	67	082	63	417	59	52
9	347	99	687	91	460	84	618	78	120	72	930	68	114.019	63	358	59	51
10	142.249	98	136.597	90	131.376	84	126.540	78	122.047	73	117.863	67	113.956	63	110.299	59	50
11	151	98	506	91	293	83	463	77	121.975	72	795	68	893	63	240	59	49
12	142.053	98	416	90	209	84	385	78	903	72	728	67	830	63	181	59	48
13	141.956	97	326	90	126	83	308	77	831	72	661	67	767	63	122	59	47
14	858	98	236	90	131.042	84	230	78	759	72	594	67	704	63	064	58	46
15	760	98	146	90	130.959	83	153	77	687	72	527	67	642	62	110.005	59	45
16	663	97	136.056	90	876	83	126.076	77	616	71	460	67	579	63	109.946	59	44
17	566	97	135.966	90	793	83	125.999	77	544	72	393	67	516	63	888	58	43
18	469	97	877	89	710	83	922	77	472	72	326	67	454	62	829	59	42
19	372	97	787	90	627	83	845	77	401	71	260	66	392	62	771	58	41
20	141.275	97	135.698	89	130.545	82	125.769	76	121.329	72	117.193	67	113.329	63	109.712	59	40
21	178	97	609	89	462	83	692	77	258	71	127	66	267	62	654	58	39
22	141.082	96	520	89	380	82	615	77	187	71	117.060	67	205	62	596	58	38
23	140.985	97	431	89	297	83	539	76	116	71	116.994	66	143	62	537	59	37
24	889	96	342	89	215	82	463	76	121.045	71	927	67	081	62	479	58	36
25	793	96	253	89	133	82	386	77	120.974	71	861	66	113.019	62	421	58	35
26	697	96	165	88	130.051	82	310	76	903	71	795	66	112.957	62	363	58	34
27	601	96	135.076	89	129.969	82	234	76	832	71	729	66	895	62	305	58	33
28	505	96	134.988	88	887	82	158	76	761	71	663	66	833	62	247	58	32
29	409	96	899	89	805	82	082	76	691	70	597	66	772	61	190	57	31
30	140.314	95	134.811	88	129.724	81	125.006	76	120.620	71	116.531	66	112.710	62	109.132	58	30
31	218	96	723	88	642	82	124.931	75	549	71	465	66	648	62	074	58	29
32	123	95	635	88	561	81	855	76	479	70	399	66	587	61	109.016	58	28
33	140.028	95	547	88	479	82	779	76	409	70	334	65	526	61	108.959	57	27
34	139.933	95	460	87	398	81	704	75	338	71	268	66	464	62	901	58	26
35	838	95	372	88	317	81	629	75	268	70	203	65	403	61	844	57	25
36	743	95	285	87	236	81	553	76	198	70	137	66	342	61	786	58	24
37	649	94	197	88	155	81	478	75	128	70	072	65	281	61	729	57	23
38	554	95	110	87	129.074	81	403	75	120.058	70	116.007	65	219	62	672	57	22
39	460	94	134.023	87	128.994	80	328	75	119.988	70	115.941	66	158	61	615	57	21
40	139.366	94	133.936	87	128.913	81	124.253	75	119.919	69	115.876	65	112.097	61	108.557	58	20
41	272	94	849	87	832	81	178	75	849	70	811	65	112.037	60	500	57	19
42	178	94	762	87	752	80	104	74	779	70	746	65	111.976	61	443	57	18
43	139.084	94	675	87	672	80	124.029	75	710	69	681	65	915	61	386	57	17
44	138.990	94	589	86	591	81	123.955	74	640	70	616	65	854	61	329	57	16
45	896	94	502	87	511	80	880	75	571	69	552	64	794	60	272	57	15
46	803	93	416	86	431	80	806	74	502	69	487	65	733	61	216	56	14
47	710	93	330	86	351	80	731	75	433	69	422	65	673	60	159	57	13
48	616	94	243	87	272	79	657	74	363	70	358	64	612	61	102	57	12
49	523	93	157	86	192	80	583	74	294	69	293	65	552	60	108.046	56	11
50	138.430	93	133.072	85	128.112	80	123.509	74	119.225	69	115.229	64	111.492	60	107.989	57	10
51	338	92	132.986	86	128.033	79	435	74	157	68	165	64	431	61	932	57	9
52	245	93	900	86	127.953	80	361	74	088	69	100	65	371	60	876	56	8
53	152	93	814	86	874	79	288	73	119.019	69	115.036	64	311	60	820	56	7
54	138.060	92	729	85	795	79	214	74	118.950	69	114.972	64	251	60	763	57	6
55	137.967	93	644	85	716	79	140	74	882	68	908	64	191	60	707	56	5
56	875	92	558	86	637	79	123.067	73	813	69	844	64	131	60	651	56	4
57	783	92	473	85	558	79	122.994	73	745	68	780	64	071	60	595	56	3
58	691	92	388	85	479	79	920	74	677	68	716	64	111.011	60	539	56	2
59	599	92	303	85	400	79	847	73	608	69	652	64	110.952	59	482	57	1
60	137.507	92	132.219	84	127.321	79	122.774	73	118.540	68	114.589	63	110.892	60	107.426	56	0
	35′		34′		33′		32′		31′		30′		29′		28′		

tang 89°

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

61	
1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

67	
1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

73	
1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

79	
1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

85	
1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

91	
1	9.1
2	18.2
3	27.3
4	36.4
5	45.5
6	54.6
7	63.7
8	72.8
9	81.9

97	
1	9.7
2	19.4
3	29.1
4	38.8
5	48.5
6	58.2
7	67.9
8	77.6
9	87.3

cosec 0°

	24′		25′		26′		27′		28′		29′		30′		31′		
0″	143.241		137.511		132.222		127.325		122.778		118.544		114.593		110.897		**60″**
1	141	100	419	92	138	84	247	78	705	73	476	68	529	64	837	60	59
2	143.042	99	328	91	132.053	85	168	79	632	73	408	68	466	63	777	60	58
3	142.943	99	237	91	131.969	84	090	78	559	73	340	68	402	64	718	59	57
4	844	99	145	92	884	85	127.012	78	486	73	273	67	339	63	659	59	56
5	745	99	137.054	91	800	84	126.934	78	414	72	205	68	276	63	599	60	55
6	646	99	136.963	91	716	84	855	79	341	73	137	68	212	64	540	59	54
7	548	98	872	91	632	84	777	78	269	72	069	68	149	63	481	59	53
8	449	99	782	90	548	84	700	77	196	73	118.002	67	086	63	422	59	52
9	351	98	691	91	464	84	622	78	124	72	117.934	68	114.023	63	363	59	51
10	142.253	98	136.600	91	131.380	84	126.544	78	122.052	72	117.867	67	113.960	63	110.304	59	**50**
11	155	98	510	90	296	84	467	77	121.979	73	800	67	897	63	245	59	49
12	142.057	98	420	90	213	83	389	78	907	72	732	68	834	63	186	59	48
13	141.959	98	330	90	130	83	312	77	835	72	665	67	771	63	127	59	47
14	861	98	240	90	131.046	84	234	78	763	72	598	67	709	62	068	59	46
15	764	97	150	90	130.963	83	157	77	692	71	531	67	646	63	110.009	59	45
16	667	97	136.060	90	880	83	080	77	620	72	464	67	583	63	109.951	58	44
17	569	98	135.970	90	797	83	126.003	77	548	72	397	67	521	62	892	59	43
18	472	97	881	89	714	83	125.926	77	477	71	331	66	458	63	834	58	42
19	375	97	791	90	631	83	849	77	405	72	264	67	396	62	775	59	41
20	141.278	97	135.702	89	130.549	82	125.773	76	121.334	71	117.197	67	113.334	62	109.717	58	**40**
21	182	96	613	89	466	83	696	77	262	72	131	66	272	62	659	58	39
22	141.085	97	523	90	384	82	619	77	191	71	117.064	67	209	63	600	59	38
23	140.989	96	434	89	301	83	543	76	120	71	116.998	66	147	62	542	58	37
24	892	97	346	88	219	82	467	76	121.049	71	932	66	085	62	484	58	36
25	796	96	257	89	137	82	390	77	120.978	71	865	67	113.023	62	426	58	35
26	700	96	168	89	130.055	82	314	76	907	71	799	66	112.961	62	368	58	34
27	604	96	135.080	88	129.973	82	238	76	836	71	733	66	900	61	310	58	33
28	509	95	134.991	89	891	82	162	76	765	71	667	66	838	62	252	58	32
29	413	96	903	88	809	82	086	76	695	70	601	66	776	62	194	58	31
30	140.317	96	134.815	88	129.728	81	125.010	76	120.624	71	116.535	66	112.714	62	109.136	58	**30**
31	222	95	727	88	646	82	124.935	75	554	70	469	66	653	61	079	57	29
32	127	95	639	88	565	81	859	76	483	71	404	65	591	62	109.021	58	28
33	140.032	95	551	88	483	82	783	76	413	70	338	66	530	61	108.963	58	27
34	139.937	95	463	88	402	81	708	75	343	70	272	66	469	61	906	57	26
35	842	95	376	87	321	81	633	75	272	71	207	65	407	62	848	58	25
36	747	95	288	88	240	81	557	76	202	70	142	65	346	61	791	57	24
37	652	95	201	87	159	81	482	75	132	70	076	66	285	61	734	57	23
38	558	94	114	87	129.078	81	407	75	120.062	70	116.011	65	224	61	676	58	22
39	464	94	134.026	88	128.997	81	332	75	119.993	69	115.946	65	163	61	619	57	21
40	139.369	95	133.939	87	128.917	80	124.257	75	119.923	70	115.881	65	112.102	61	108.562	57	**20**
41	275	94	853	86	836	81	182	75	853	70	815	66	112.041	61	505	57	19
42	181	94	766	87	756	80	108	74	784	69	750	65	111.980	61	448	57	18
43	139.087	94	679	87	676	80	124.033	75	714	70	686	64	919	61	391	57	17
44	138.994	93	592	87	595	81	123.959	74	645	69	621	65	859	60	334	57	16
45	900	94	506	86	515	80	884	75	575	70	556	65	798	61	277	57	15
46	807	93	420	86	435	80	810	74	506	69	491	65	738	60	220	57	14
47	713	94	333	87	355	80	735	75	437	69	427	64	677	61	163	57	13
48	620	93	247	86	275	80	661	74	368	69	362	65	617	60	107	56	12
49	527	93	161	86	196	79	587	74	299	69	298	64	556	61	108.050	57	11
50	138.434	93	133.075	85	128.116	80	123.513	74	119.230	69	115.233	65	111.496	60	107.994	56	**10**
51	341	93	132.990	86	128.037	79	439	74	161	69	169	64	436	60	937	57	9
52	248	93	904	86	127.957	80	365	74	092	69	105	64	376	60	881	56	8
53	156	92	818	86	878	79	292	73	119.023	69	115.040	65	315	61	824	57	7
54	138.063	93	733	85	799	79	218	74	118.955	68	114.976	64	255	60	768	56	6
55	137.971	92	647	86	719	80	145	73	886	69	912	64	195	60	712	56	5
56	879	92	562	85	640	79	123.071	74	818	68	848	64	136	59	655	57	4
57	787	92	477	85	561	79	122.998	73	749	69	784	64	076	60	599	56	3
58	695	92	392	85	483	78	924	74	681	68	720	64	111.016	60	543	56	2
59	603	92	307	85	404	79	851	73	613	68	657	63	110.956	60	487	56	1
60	137.511	92	132.222	85	127.325	79	122.778	73	118.544	69	114.593	64	110.897	59	107.431	56	**0**
	35′		34′		33′		32′		31′		30′		29′		28′		

58		64		70		76		82		88		94		99						
1	5.8	1	6.4	1	7.0	1	7.6	1	8.2	1	8.8	1	9.4	1	9.9					
2	11.6	2	12.8	2	14.0	2	15.2	2	16.4	2	17.6	2	18.8	2	19.8					
3	17.4	3	19.2	3	21.0	3	22.8	3	24.6	3	26.4	3	28.2	3	29.7					
4	23.2	4	25.6	4	28.0	4	30.4	4	32.8	4	35.2	4	37.6	4	39.6					
5	29.0	5	32.0	5	35.0	5	38.0	5	41.0	5	44.0	5	47.0	5	49.5					
6	34.8	6	38.4	6	42.0	6	45.6	6	49.2	6	52.8	6	56.4	6	59.4					
7	40.6	7	44.8	7	49.0	7	53.2	7	57.4	7	61.6	7	65.8	7	69.3					
8	46.4	8	51.2	8	56.0	8	60.8	8	65.6	8	70.4	8	75.2	8	79.2					
9	52.2	9	57.6	9	63.0	9	68.4	9	73.8	9	79.2	9	84.6	9	89.1					

sec 89°

cotg 0°

	32′		33′		34′		35′		36′		37′		38′		39′		
0″	107.426		104.171		101.107		98.218		95.489		92.908		90.463		88.144		60″
1	371	55	118	53	057	50	171	47	445	44	867	41	424	39	106	38	59
2	315	56	066	52	101.008	49	124	47	401	44	825	42	384	40	068	38	58
3	259	56	104.013	53	100.958	50	078	46	357	44	783	42	344	40	88.031	37	57
4	203	56	103.961	52	909	49	98.031	47	313	44	741	42	305	39	87.993	38	56
5	147	56	909	52	860	49	97.985	46	269	44	700	41	265	40	956	37	55
6	092	55	856	53	810	50	938	47	225	44	658	42	226	39	918	38	54
7	107.036	56	804	52	761	49	892	46	181	44	616	42	186	40	881	37	53
8	106.981	55	752	52	712	49	845	47	137	44	575	41	147	39	843	38	52
9	925	56	700	52	663	49	799	46	093	44	533	42	108	39	806	37	51
10	106.870	55	103.647	53	100.614	49	97.752	47	95.049	44	92.492	41	90.068	40	87.768	38	50
11	814	56	595	52	565	49	706	46	95.006	43	450	42	90.029	39	731	37	49
12	759	55	543	52	516	49	660	46	94.962	44	409	41	89.990	39	694	37	48
13	704	55	491	52	467	49	614	46	918	44	368	41	950	40	657	37	47
14	649	55	440	51	418	49	567	47	875	43	326	42	911	39	619	38	46
15	594	55	388	52	369	49	521	46	831	44	285	41	872	39	582	37	45
16	539	55	336	52	320	49	475	46	787	44	244	41	833	39	545	37	44
17	484	55	284	52	271	49	429	46	744	43	202	42	794	39	508	37	43
18	429	55	232	52	223	48	383	46	700	44	161	41	755	39	471	37	42
19	374	55	181	51	174	49	337	46	657	43	120	41	716	39	434	37	41
20	106.319	55	103.129	52	100.125	49	97.291	46	94.613	44	92.079	41	89.677	39	87.397	37	40
21	264	55	078	51	077	48	245	46	570	43	92.038	41	638	39	360	37	39
22	209	55	103.026	52	100.028	49	200	45	527	43	91.997	41	599	39	323	37	38
23	155	54	102.975	51	99.980	48	154	46	483	44	956	41	560	39	286	37	37
24	100	55	923	52	931	49	108	46	440	43	915	41	521	39	249	37	36
25	106.046	54	872	51	883	48	062	46	397	43	874	41	482	39	212	37	35
26	105.991	55	821	51	834	49	97.017	45	354	43	833	41	443	39	175	37	34
27	937	54	769	52	786	48	96.971	46	311	43	792	41	405	38	138	37	33
28	882	55	718	51	738	48	926	45	267	44	751	41	366	39	101	37	32
29	828	54	667	51	690	48	880	46	224	43	710	41	327	39	064	37	31
30	105.774	54	102.616	51	99.641	49	96.834	46	94.181	43	91.670	40	89.288	39	87.028	36	30
31	719	55	565	51	593	48	789	45	138	43	629	41	250	38	86.991	37	29
32	665	54	514	51	545	48	744	45	095	43	588	41	211	39	954	37	28
33	611	54	463	51	497	48	698	46	052	43	548	40	173	38	918	36	27
34	557	54	412	51	449	48	653	45	94.010	42	507	41	134	39	881	37	26
35	503	54	361	51	401	48	608	45	93.967	43	466	41	096	38	845	36	25
36	449	54	311	50	353	48	562	46	924	43	426	40	057	39	808	37	24
37	395	54	260	51	306	47	517	45	881	43	385	41	89.019	38	771	37	23
38	341	54	209	51	258	48	472	45	838	43	345	40	88.980	39	735	36	22
39	288	53	159	50	210	48	427	45	796	42	304	41	942	38	698	37	21
40	105.234	54	102.108	51	99.162	48	96.382	45	93.753	43	91.264	40	88.903	39	86.662	36	20
41	180	54	057	51	115	47	337	45	711	42	224	40	865	38	626	36	19
42	127	53	102.007	50	067	48	292	45	668	43	183	41	827	38	589	37	18
43	073	54	101.957	50	99.020	47	247	45	625	43	143	40	789	38	553	36	17
44	105.020	53	906	51	98.972	48	202	45	583	42	103	40	750	39	517	36	16
45	104.966	54	856	50	925	47	157	45	541	42	062	41	712	38	480	37	15
46	913	53	806	50	877	48	112	45	498	43	91.022	40	674	38	444	36	14
47	859	54	755	51	830	47	068	44	456	42	90.982	40	636	38	408	36	13
48	806	53	705	50	782	48	96.023	45	413	43	942	40	598	38	372	36	12
49	753	53	655	50	735	47	95.978	45	371	42	902	40	560	38	336	36	11
50	104.700	53	101.605	50	98.688	47	95.934	44	93.329	42	90.862	40	88.522	38	86.299	37	10
51	647	53	555	50	641	47	889	45	287	42	822	40	484	38	263	36	9
52	594	53	505	50	594	47	844	45	245	42	782	40	446	38	227	36	8
53	541	53	455	50	546	48	800	44	202	43	742	40	408	38	191	36	7
54	488	53	405	50	499	47	755	45	160	42	702	40	370	38	155	36	6
55	435	53	355	50	452	47	711	44	118	42	662	40	332	38	119	36	5
56	382	53	306	49	405	47	667	44	076	42	622	40	295	37	083	36	4
57	329	53	256	50	358	47	622	45	93.034	42	583	39	257	38	047	36	3
58	276	53	206	50	312	46	578	44	92.992	42	543	40	219	38	86.011	36	2
59	224	52	156	50	265	47	534	44	950	42	503	40	181	38	85.976	35	1
60	104.171	53	101.107	49	98.218	47	95.489	45	92.908	42	90.463	40	88.144	37	85.940	36	0
	27′		26′		25′		24′		23′		22′		21′		20′		

tang 89°

35	
1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

37	
1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

39	
1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

cosec 0°

	32′		33′		34′		35′		36′		37′		38′		39′		
0″	107.431		104.176		101.112		98.223		95.495		92.914		90.469		88.149		60″
1	375	56	123	53	062	50	176	47	451	44	872	42	429	40	112	37	59
2	319	56	071	52	101.013	49	130	46	406	45	830	42	390	39	074	38	58
3	264	55	104.018	53	100.963	50	083	47	362	44	788	42	350	40	88.036	38	57
4	208	56	103.966	52	914	49	98.036	47	318	44	747	41	310	40	87.999	37	56
5	152	56	913	53	865	49	97.990	46	274	44	705	42	271	39	961	38	55
6	096	56	861	52	815	50	943	47	230	44	663	42	231	40	924	37	54
7	107.041	55	809	52	766	49	897	46	186	44	622	41	192	39	886	38	53
8	106.985	56	757	52	717	49	850	47	142	44	580	42	153	39	849	37	52
9	930	55	704	53	668	49	804	46	098	44	539	41	113	40	812	37	51
10	106.875	55	103.652	52	100.619	49	97.758	46	95.055	43	92.497	42	90.074	39	87.774	38	**50**
11	819	56	600	52	570	49	711	47	95.011	44	456	41	90.035	39	737	37	49
12	764	55	548	52	521	49	665	46	94.967	44	414	42	89.995	40	700	37	48
13	709	55	496	52	472	49	619	46	923	44	373	41	956	39	662	38	47
14	653	56	444	52	423	49	573	46	880	43	332	41	917	39	625	37	46
15	598	55	392	52	374	49	526	47	836	44	290	42	878	39	588	37	45
16	543	55	341	51	325	49	480	46	793	43	249	41	838	40	551	37	44
17	488	55	289	52	276	49	434	46	749	44	208	41	799	39	513	38	43
18	433	55	237	52	228	48	388	46	706	43	167	41	760	39	476	37	42
19	378	55	186	51	179	49	342	46	662	44	125	42	721	39	439	37	41
20	106.324	54	103.134	52	100.130	49	97.296	46	94.619	43	92.084	41	89.682	39	87.402	37	**40**
21	269	55	082	52	082	48	251	45	575	44	043	41	643	39	365	37	39
22	214	55	103.031	51	100.033	49	205	46	532	43	92.002	41	604	39	328	37	38
23	159	55	102.980	51	99.985	48	159	46	489	43	91.961	41	565	39	291	37	37
24	105	54	928	52	936	49	113	46	445	44	920	41	527	38	254	37	36
25	106.050	55	877	51	888	48	068	45	402	43	879	41	488	39	217	37	35
26	105.996	54	826	51	839	49	97.022	46	359	43	838	41	449	39	181	36	34
27	941	55	774	52	791	48	96.976	46	316	43	797	41	410	39	144	37	33
28	887	54	723	51	743	48	931	45	273	43	757	40	371	39	107	37	32
29	833	54	672	51	695	48	885	46	230	43	716	41	333	38	070	37	31
30	105.778	55	102.621	51	99.647	48	96.840	45	94.187	43	91.675	41	89.294	39	87.033	37	**30**
31	724	54	570	51	598	49	794	46	144	43	634	41	255	39	86.997	36	29
32	670	54	519	51	550	48	749	45	101	43	594	40	217	38	960	37	28
33	616	54	468	51	502	48	703	46	058	43	553	41	178	39	923	37	27
34	562	54	417	51	454	48	658	45	94.015	43	512	41	140	38	887	36	26
35	508	54	366	51	406	48	613	45	93.972	43	472	40	101	39	850	37	25
36	454	54	316	50	359	47	568	45	929	43	431	41	063	38	814	36	24
37	400	54	265	51	311	48	522	46	887	42	391	40	89.024	39	777	37	23
38	346	54	214	51	263	48	477	45	844	43	350	41	88.986	38	741	36	22
39	292	54	163	51	215	48	432	45	801	43	310	40	947	39	704	37	21
40	105.239	53	102.113	50	99.167	48	96.387	45	93.759	42	91.269	41	88.909	38	86.668	36	**20**
41	185	54	062	51	120	47	342	45	716	43	229	40	871	38	631	37	19
42	131	54	102.012	50	072	48	297	45	673	43	189	40	833	38	595	36	18
43	078	53	101.961	51	99.025	47	252	45	631	42	148	41	794	39	559	36	17
44	105.024	54	911	50	98.977	48	207	45	588	43	108	40	756	38	522	37	16
45	104.971	53	861	50	930	47	162	45	546	42	068	40	718	38	486	36	15
46	918	53	811	50	882	48	118	44	504	42	91.028	40	680	38	450	36	14
47	864	54	760	51	835	47	073	45	461	43	90.988	40	642	38	414	36	13
48	811	53	710	50	788	47	96.028	45	419	42	948	40	604	38	377	37	12
49	758	53	660	50	740	48	95.983	45	377	42	907	41	566	38	341	36	11
50	104.705	53	101.610	50	98.693	47	95.939	44	93.334	43	90.867	40	88.528	38	86.305	36	**10**
51	651	54	560	50	646	47	894	45	292	42	827	40	490	38	269	36	9
52	598	53	510	50	599	47	850	44	250	42	787	40	452	38	233	36	8
53	545	53	460	50	552	47	805	45	208	42	747	40	414	38	197	36	7
54	492	53	410	50	504	48	761	44	166	42	708	39	376	38	161	36	6
55	439	53	360	50	457	47	716	45	124	42	668	40	338	38	125	36	5
56	387	52	310	50	410	47	672	44	082	42	628	40	300	38	089	36	4
57	334	53	261	49	364	46	628	44	93.040	42	588	40	262	38	053	36	3
58	281	53	211	50	317	47	583	45	92.998	42	548	40	225	37	86.017	36	2
59	228	53	161	50	270	47	539	44	956	42	509	39	187	38	85.981	36	1
60	104.176	52	101.112	49	98.223	47	95.495	44	92.914	42	90.469	40	88.149	38	85.946	35	**0**
	27′		26′		25′		24′		23′		22′		21′		20′		

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

sec 89°

cotg 0°

	40′		41′		42′		43′		44′		45′		46′		47′		
0″	85.940		83.844		81.847		79.943		78.126		76.390		74.729		73.139		60″
1	904	36	809	35	815	32	912	31	097	29	362	28	702	27	113	26	59
2	868	36	775	34	782	33	881	31	067	30	333	29	675	27	087	26	58
3	832	36	741	34	750	32	851	30	038	29	305	28	648	27	061	26	57
4	797	35	707	34	717	33	820	31	78.008	30	277	28	621	27	035	26	56
5	761	36	673	34	685	32	789	31	77.979	29	249	28	594	27	73.010	25	55
6	725	36	639	34	653	32	758	31	949	30	221	28	567	27	72.984	26	54
7	690	35	606	33	620	33	727	31	920	29	192	29	540	27	958	26	53
8	654	36	572	34	588	32	696	31	890	30	164	28	513	27	932	26	52
9	619	35	538	34	556	32	665	31	861	29	136	28	486	27	906	26	51
10	85.583	36	83.504	34	81.524	32	79.635	30	77.831	30	76.108	28	74.459	27	72.881	25	50
11	548	35	470	34	491	33	604	31	802	29	080	28	432	27	855	26	49
12	512	36	436	34	459	32	573	31	773	29	052	28	406	26	829	26	48
13	477	35	403	33	427	32	543	30	743	30	76.024	28	379	27	803	26	47
14	441	36	369	34	395	32	512	31	714	29	75.996	28	352	27	778	25	46
15	406	35	335	34	363	32	481	31	685	29	968	28	325	27	752	26	45
16	371	35	302	33	331	32	451	30	656	29	940	28	298	27	726	26	44
17	335	36	268	34	299	32	420	31	626	30	912	28	272	26	701	25	43
18	300	35	234	34	267	32	389	31	597	29	884	28	245	27	675	26	42
19	265	35	201	33	234	33	359	30	568	29	856	28	218	27	649	26	41
20	85.229	36	83.167	34	81.203	31	79.328	31	77.539	29	75.828	28	74.191	27	72.624	25	40
21	194	35	134	33	171	32	298	30	510	29	800	28	165	26	598	26	39
22	159	35	100	34	139	32	267	31	481	29	773	27	138	27	573	25	38
23	124	35	067	33	107	32	237	30	452	29	745	28	111	27	547	26	37
24	089	35	033	34	075	32	207	30	422	30	717	28	085	26	522	25	36
25	054	35	83.000	33	043	32	176	31	393	29	689	28	058	27	496	26	35
26	85.019	35	82.967	33	81.011	32	146	30	364	29	661	28	032	26	471	25	34
27	84.984	35	933	34	80.979	32	115	31	335	29	634	27	74.005	27	445	26	33
28	949	35	900	33	948	31	085	30	306	29	606	28	73.979	26	420	25	32
29	914	35	867	33	916	32	055	30	277	29	578	28	952	27	394	26	31
30	84.879	35	82.833	34	80.884	32	79.024	31	77.248	29	75.550	28	73.926	26	72.369	25	30
31	844	35	800	33	852	32	78.994	30	219	29	523	27	899	27	344	25	29
32	809	35	767	33	821	31	964	30	191	28	495	28	873	26	318	26	28
33	774	35	734	33	789	32	934	30	162	29	468	27	846	27	293	25	27
34	739	35	700	34	757	32	904	30	133	29	440	28	820	26	268	25	26
35	704	35	667	33	726	31	873	31	104	29	412	28	793	27	242	26	25
36	670	34	634	33	694	32	843	30	075	29	385	27	767	26	217	25	24
37	635	35	601	33	663	31	813	30	046	29	357	28	740	27	192	25	23
38	600	35	568	33	631	32	783	30	77.018	28	330	27	714	26	166	26	22
39	565	35	535	33	600	31	753	30	76.989	29	302	28	688	26	141	25	21
40	84.531	34	82.502	33	80.568	32	78.723	30	76.960	29	75.275	27	73.661	27	72.116	25	20
41	496	35	469	33	537	31	693	30	931	29	247	28	635	26	091	25	19
42	462	34	436	33	505	32	663	30	903	28	220	27	609	26	066	25	18
43	427	35	403	33	474	31	633	30	874	29	192	28	583	26	040	26	17
44	392	35	370	33	442	32	603	30	845	29	165	27	556	27	72.015	25	16
45	358	34	337	33	411	31	573	30	817	28	138	27	530	26	71.990	25	15
46	323	35	304	33	380	31	543	30	788	29	110	28	504	26	965	25	14
47	289	34	271	33	348	32	513	30	760	28	083	27	478	26	940	25	13
48	255	34	239	32	317	31	483	30	731	29	056	27	452	26	915	25	12
49	220	35	206	33	286	31	453	30	703	28	028	28	425	27	890	25	11
50	84.186	34	82.173	33	80.255	31	78.423	30	76.674	29	75.001	27	73.399	26	71.865	25	10
51	151	35	140	33	223	32	394	29	646	28	74.974	27	373	26	840	25	9
52	117	34	108	32	192	31	364	30	617	29	946	28	347	26	815	25	8
53	083	34	075	33	161	31	334	30	589	28	919	27	321	26	790	25	7
54	049	34	042	33	130	31	304	30	560	29	892	27	295	26	765	25	6
55	84.014	35	82.010	32	099	31	275	29	532	28	865	27	269	26	740	25	5
56	83.980	34	81.977	33	068	31	245	30	503	29	838	27	243	26	715	25	4
57	946	34	945	32	037	31	215	30	475	28	810	28	217	26	690	25	3
58	912	34	912	33	80.005	32	186	29	447	28	783	27	191	26	665	25	2
59	878	34	880	32	79.974	31	156	30	418	29	756	27	165	26	640	25	1
60	83.844	34	81.847	33	79.943	31	78.126	30	76.390	28	74.729	27	73.139	26	71.615	25	0
	19′		18′		17′		16′		15′		14′		13′		12′		

25	
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

27	
1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

35	
1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

tang 89°

cosec 0°

	40′		41′		42′		43′		44′		45′		46′		47′		
0″	85.946		83.849		81.853		79.950		78.133		76.397		74.736		73.146		**60″**
1	910	36	815	34	821	32	919	31	103	30	368	29	709	27	120	26	59
2	874	36	781	34	788	33	888	31	074	29	340	28	682	27	094	26	58
3	838	36	747	34	756	32	857	31	044	30	312	28	655	27	068	26	57
4	803	35	713	34	723	33	826	31	78.015	29	284	28	628	27	042	26	56
5	767	36	679	34	691	32	795	31	77.985	30	255	29	601	27	73.016	26	55
6	731	36	645	34	659	32	764	31	956	29	227	28	574	27	72.991	25	54
7	696	35	612	33	626	33	733	31	926	30	199	28	547	27	965	26	53
8	660	36	578	34	594	32	703	30	897	29	171	28	520	27	939	26	52
9	625	35	544	34	562	32	672	31	867	30	143	28	493	27	913	26	51
10	85.589	36	83.510	34	81.530	32	79.641	31	77.838	29	76.115	28	74.466	27	72.887	26	**50**
11	554	35	476	34	497	33	610	31	809	29	087	28	439	27	862	25	49
12	518	36	442	34	465	32	580	30	779	30	059	28	412	27	836	26	48
13	483	35	409	33	433	32	549	31	750	29	031	28	386	26	810	26	47
14	447	36	375	34	401	32	518	31	721	29	76.002	29	359	27	785	25	46
15	412	35	341	34	369	32	488	30	691	30	75.974	28	332	27	759	26	45
16	376	36	308	33	337	32	457	31	662	29	947	27	305	27	733	26	44
17	341	35	274	34	305	32	426	31	633	29	919	28	278	27	708	25	43
18	306	35	240	34	273	32	396	30	604	29	891	28	252	26	682	26	42
19	271	35	207	33	241	32	365	31	574	30	863	28	225	27	656	26	41
20	85.235	36	83.173	34	81.209	32	79.335	30	77.545	29	75.835	28	74.198	27	72.631	25	**40**
21	200	35	140	33	177	32	304	31	516	29	807	28	172	26	605	26	39
22	165	35	106	34	145	32	274	30	487	29	779	28	145	27	580	25	38
23	130	35	073	33	113	32	243	31	458	29	751	28	118	27	554	26	37
24	095	35	039	34	081	32	213	30	429	29	723	28	092	26	529	25	36
25	060	35	83.006	33	049	32	182	31	400	29	696	27	065	27	503	26	35
26	85.025	35	82.973	33	81.017	32	152	30	371	29	668	28	038	27	478	25	34
27	84.990	35	939	34	80.985	32	122	30	342	29	640	28	74.012	26	452	26	33
28	955	35	906	33	954	31	091	31	313	29	612	28	73.985	27	427	25	32
29	920	35	873	33	922	32	061	30	284	29	585	27	959	26	401	26	31
30	84.885	35	82.839	34	80.890	32	79.031	30	77.255	29	75.557	28	73.932	27	72.376	25	**30**
31	850	35	806	33	859	31	79.001	30	226	29	529	28	906	26	351	25	29
32	815	35	773	33	827	32	78.970	31	197	29	502	27	879	27	325	26	28
33	780	35	740	33	795	32	940	30	168	29	474	28	853	26	300	25	27
34	745	35	706	34	764	31	910	30	139	29	447	27	826	27	274	26	26
35	710	35	673	33	732	32	880	30	111	28	419	28	800	26	249	25	25
36	676	34	640	33	700	32	850	30	082	29	391	28	774	26	224	25	24
37	641	35	607	33	669	31	819	31	053	29	364	27	747	27	199	25	23
38	606	35	574	33	637	32	789	30	77.024	29	336	28	721	26	173	26	22
39	571	35	541	33	606	31	759	30	76.995	29	309	27	695	26	148	25	21
40	84.537	34	82.508	33	80.574	32	78.729	30	76.967	28	75.281	28	73.668	27	72.123	25	**20**
41	502	35	475	33	543	31	699	30	938	29	254	27	642	26	098	25	19
42	467	35	442	33	511	32	669	30	909	29	226	28	616	26	072	26	18
43	433	34	409	33	480	31	639	30	881	28	199	27	589	27	047	25	17
44	398	35	376	33	449	31	609	30	852	29	172	27	563	26	72.022	25	16
45	364	34	343	33	417	32	579	30	823	29	144	28	537	26	71.997	25	15
46	329	35	310	33	386	31	549	30	795	28	117	27	511	26	972	25	14
47	295	34	278	32	355	31	519	30	766	29	090	27	485	26	947	25	13
48	260	35	245	33	323	32	489	30	738	28	062	28	458	27	922	25	12
49	226	34	212	33	292	31	460	29	709	29	035	27	432	26	897	25	11
50	84.192	34	82.179	33	80.261	31	78.430	30	76.681	28	75.008	27	73.406	26	71.872	25	**10**
51	157	35	147	32	230	31	400	30	652	29	74.980	28	380	26	847	25	9
52	123	34	114	33	198	32	370	30	624	28	953	27	354	26	822	25	8
53	089	34	081	33	167	31	340	30	595	29	926	27	328	26	797	25	7
54	054	35	048	33	136	31	311	29	567	28	899	27	302	26	772	25	6
55	84.020	34	82.016	32	105	31	281	30	538	29	871	28	276	26	747	25	5
56	83.986	34	81.983	33	074	31	251	30	510	28	844	27	250	26	722	25	4
57	952	34	951	32	043	31	222	29	482	28	817	27	224	26	697	25	3
58	918	34	918	33	80.012	31	192	30	453	29	790	27	198	26	672	25	2
59	884	34	886	32	79.981	31	162	30	425	28	763	27	172	26	647	25	1
60	83.849	35	81.853	33	79.950	31	78.133	29	76.397	28	74.736	27	73.146	26	71.622	25	**0**
	19′		18′		17′		16′		15′		14′		13′		12′		

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sec 89°

cotg 0°

	48′		49′		50′		51′		52′		53′		54′		55′		
0″	71.615		70.153		68.750		67.402		66.105		64.858		63.657		62.499		60″
1	590	25	129	24	727	23	380	22	084	21	838	20	637	20	480	19	59
2	565	25	106	23	704	23	358	22	063	21	817	21	617	20	461	19	58
3	541	24	082	24	681	23	336	22	042	21	797	20	598	19	442	19	57
4	516	25	058	24	659	22	314	22	021	21	777	20	578	20	423	19	56
5	491	25	034	24	636	23	292	22	66.000	21	756	21	559	19	405	18	55
6	466	25	70.010	24	613	23	270	22	65.979	21	736	20	539	20	386	19	54
7	441	25	69.987	23	590	23	248	22	957	22	716	20	519	20	367	19	53
8	417	24	963	24	567	23	226	22	936	21	695	21	500	19	348	19	52
9	392	25	939	24	544	23	204	22	915	21	675	20	480	20	329	19	51
10	71.367	25	69.916	23	68.522	22	67.182	22	65.894	21	64.655	20	63.461	19	62.310	19	50
11	343	24	892	24	499	23	160	22	873	21	634	21	441	20	291	19	49
12	318	25	868	24	476	23	139	21	852	21	614	20	422	19	273	18	48
13	293	25	844	24	453	23	117	22	831	21	594	20	402	20	254	19	47
14	269	24	821	23	431	22	095	22	810	21	574	20	383	19	235	19	46
15	244	25	797	24	408	23	073	22	789	21	553	21	363	20	216	19	45
16	219	25	774	23	385	23	051	22	768	21	533	20	344	19	198	18	44
17	195	24	750	24	363	22	029	22	747	21	513	20	324	20	179	19	43
18	170	25	726	24	340	23	67.008	21	726	21	493	20	305	19	160	19	42
19	146	24	703	23	317	23	66.986	22	705	21	473	20	286	19	141	19	41
20	71.121	25	69.679	24	68.295	22	66.964	22	65.684	21	64.453	20	63.266	20	62.123	18	40
21	097	24	656	23	272	23	942	22	663	21	432	21	247	19	104	19	39
22	072	25	632	24	250	22	921	21	643	20	412	20	227	20	085	19	38
23	048	24	609	23	227	23	899	22	622	21	392	20	208	19	066	19	37
24	71.023	25	585	24	204	23	877	22	601	21	372	20	189	19	048	18	36
25	70.999	24	562	23	182	22	856	21	580	21	352	20	169	20	029	19	35
26	974	25	538	24	159	23	834	22	559	21	332	20	150	19	62.011	18	34
27	950	24	515	23	137	22	812	22	538	21	312	20	131	19	61.992	19	33
28	925	25	491	24	114	23	791	21	517	21	292	20	111	20	973	19	32
29	901	24	468	23	092	22	769	22	497	20	272	20	092	19	955	18	31
30	70.877	24	69.445	23	68.069	23	66.747	22	65.476	21	64.252	20	63.073	19	61.936	19	30
31	852	25	421	24	047	22	726	21	455	21	232	20	053	20	917	19	29
32	828	24	398	23	024	23	704	22	434	21	212	20	034	19	899	18	28
33	804	24	375	23	68.002	22	683	21	413	21	192	20	63.015	19	880	19	27
34	779	25	351	24	67.980	22	661	22	393	20	172	20	62.996	19	862	18	26
35	755	24	328	23	957	23	640	21	372	21	152	20	976	20	843	19	25
36	731	24	305	23	935	22	618	22	351	21	132	20	957	19	825	18	24
37	707	24	281	24	912	23	596	22	331	20	112	20	938	19	806	19	23
38	682	25	258	23	890	22	575	21	310	21	092	20	919	19	788	18	22
39	658	24	235	23	868	22	553	22	289	21	072	20	899	20	769	19	21
40	70.634	24	69.212	23	67.845	23	66.532	21	65.269	20	64.052	20	62.880	19	61.751	18	20
41	610	24	188	24	823	22	511	21	248	21	032	20	861	19	732	19	19
42	586	24	165	23	801	22	489	22	227	21	64.012	20	842	19	714	18	18
43	561	25	142	23	778	23	468	21	207	20	63.993	19	823	19	695	19	17
44	537	24	119	23	756	22	446	22	186	21	973	20	804	19	677	18	16
45	513	24	096	23	734	22	425	21	165	21	953	20	785	19	658	19	15
46	489	24	072	24	712	22	403	22	145	20	933	20	765	20	640	18	14
47	465	24	049	23	689	23	382	21	124	21	913	20	746	19	621	19	13
48	441	24	026	23	667	22	361	21	104	20	893	20	727	19	603	18	12
49	417	24	69.003	23	645	22	339	22	083	21	874	19	708	19	585	18	11
50	70.393	24	68.980	23	67.623	22	66.318	21	65.063	20	63.854	20	62.689	19	61.566	19	10
51	369	24	957	23	601	22	297	21	042	21	834	20	670	19	548	18	9
52	345	24	934	23	579	22	275	22	022	20	814	20	651	19	529	19	8
53	321	24	911	23	556	23	254	21	65.001	21	795	19	632	19	511	18	7
54	297	24	888	23	534	22	233	21	64.981	20	775	20	613	19	493	18	6
55	273	24	865	23	512	22	212	21	960	21	755	20	594	19	474	19	5
56	249	24	842	23	490	22	190	22	940	20	735	20	575	19	456	18	4
57	225	24	819	23	468	22	169	21	919	21	716	19	556	19	438	18	3
58	201	24	796	23	446	22	148	21	899	20	696	20	537	19	419	19	2
59	177	24	773	23	424	22	127	21	878	21	676	20	518	19	401	18	1
60	70.153	24	68.750	23	67.402	22	66.105	22	64.858	20	63.657	19	62.499	19	61.383	18	0
	11′		10′		9′		8′		7′		6′		5′		4′		

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cosec 0°

	48′		49′		50′		51′		52′		53′		54′		55′		
0″	71.622		70.160		68.757		67.409		66.113		64.866		63.665		62.507		**60″**
1	597	25	137	23	734	23	387	22	092	21	845	21	645	20	488	19	59
2	572	25	113	24	712	22	365	22	071	21	825	20	625	20	469	19	58
3	548	24	089	24	689	23	343	22	050	21	805	20	606	19	450	19	57
4	523	25	065	24	666	23	321	22	028	22	784	21	586	20	431	19	56
5	498	25	041	24	643	23	299	22	66.007	21	764	20	567	19	413	18	55
6	473	25	70.018	23	620	23	277	22	65.986	21	744	20	547	20	394	19	54
7	448	25	69.994	24	597	23	255	22	965	21	723	21	527	20	375	19	53
8	424	24	970	24	575	22	234	21	944	21	703	20	508	19	356	19	52
9	399	25	946	24	552	23	212	22	923	21	683	20	488	20	337	19	51
10	71.374	25	69.923	23	68.529	23	67.190	22	65.902	21	64.662	21	63.469	19	62.318	19	**50**
11	350	24	899	24	506	23	168	22	881	21	642	20	449	20	300	18	49
12	325	25	875	24	483	23	146	22	860	21	622	20	430	19	281	19	48
13	300	25	852	23	461	22	124	22	839	21	602	20	410	20	262	19	47
14	276	24	828	24	438	23	102	22	818	21	581	21	391	19	243	19	46
15	251	25	804	24	415	23	080	22	797	21	561	20	371	20	224	19	45
16	226	25	781	23	393	22	059	21	776	21	541	20	352	19	206	18	44
17	202	24	757	24	370	23	037	22	755	21	521	20	332	20	187	19	43
18	177	25	734	23	347	23	67.015	22	734	21	501	20	313	19	168	19	42
19	153	24	710	24	325	22	66.993	22	713	21	480	21	293	20	149	19	41
20	71.128	25	69.686	24	68.302	23	66.972	21	65.692	21	64.460	20	63.274	19	62.131	18	**40**
21	104	24	663	23	279	23	950	22	671	21	440	20	255	19	112	19	39
22	079	25	639	24	257	22	928	22	650	21	420	20	235	20	093	19	38
23	055	24	616	23	234	23	906	22	629	21	400	20	216	19	075	18	37
24	030	25	592	24	212	22	885	21	608	21	380	20	197	19	056	19	36
25	71.006	24	569	23	189	23	863	22	588	20	360	20	177	20	037	19	35
26	70.981	25	545	24	167	22	841	22	567	21	340	20	158	19	019	18	34
27	957	24	522	23	144	23	820	21	546	21	320	20	138	20	62.000	19	33
28	932	25	499	23	122	22	798	22	525	21	300	20	119	19	61.981	19	32
29	908	24	475	24	099	23	776	22	504	21	280	20	100	19	963	18	31
30	70.884	24	69.452	23	68.077	22	66.755	21	65.483	21	64.260	20	63.081	19	61.944	19	**30**
31	859	25	428	24	054	23	733	22	463	20	240	20	061	20	925	19	29
32	835	24	405	23	032	22	712	21	442	21	220	20	042	19	907	18	28
33	811	24	382	23	68.009	23	690	22	421	21	200	20	023	19	888	19	27
34	786	25	358	24	67.987	22	669	21	400	21	180	20	63.004	19	870	18	26
35	762	24	335	23	964	23	647	22	380	20	160	20	62.984	20	851	19	25
36	738	24	312	23	942	22	626	21	359	21	140	20	965	19	833	18	24
37	714	24	289	23	920	22	604	22	338	21	120	20	946	19	814	19	23
38	689	25	265	24	897	23	582	22	318	20	100	20	927	19	796	18	22
39	665	24	242	23	875	22	561	21	297	21	080	20	907	20	777	19	21
40	70.641	24	69.219	23	67.853	22	66.540	21	65.276	21	64.060	20	62.888	19	61.759	18	**20**
41	617	24	196	23	830	23	518	22	256	20	040	20	869	19	740	19	19
42	593	24	172	24	808	22	497	21	235	21	020	20	850	19	722	18	18
43	568	25	149	23	786	22	475	22	214	21	64.000	20	831	19	703	19	17
44	544	24	126	23	764	22	454	21	194	20	63.981	19	812	19	685	18	16
45	520	24	103	23	741	23	432	22	173	21	961	20	793	19	666	19	15
46	496	24	080	23	719	22	411	21	153	20	941	20	773	20	648	18	14
47	472	24	057	23	697	22	390	21	132	21	921	20	754	19	629	19	13
48	448	24	033	24	675	22	368	22	111	21	901	20	735	19	611	18	12
49	424	24	69.010	23	652	23	347	21	091	20	881	20	716	19	593	18	11
50	70.400	24	68.987	23	67.630	22	66.326	21	65.070	21	63.862	19	62.697	19	61.574	19	**10**
51	376	24	964	23	608	22	304	22	050	20	842	20	678	19	556	18	9
52	352	24	941	23	586	22	283	21	029	21	822	20	659	19	538	18	8
53	328	24	918	23	564	22	262	21	65.009	20	802	20	640	19	519	19	7
54	304	24	895	23	542	22	240	22	64.988	21	783	19	621	19	501	18	6
55	280	24	872	23	520	22	219	21	968	20	763	20	602	19	483	18	5
56	256	24	849	23	497	23	198	21	947	21	743	20	583	19	464	19	4
57	232	24	826	23	475	22	177	21	927	20	724	19	564	19	446	18	3
58	208	24	803	23	453	22	155	22	907	20	704	20	545	19	428	18	2
59	184	24	780	23	431	22	134	21	886	21	684	20	526	19	409	19	1
60	70.160	24	68.757	23	67.409	22	66.113	21	64.866	20	63.665	19	62.507	19	61.391	18	**0**
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sec 89°

cotg 0° — cotg 1°

	56′		57′		58′		59′		0′		1′		2′		3′		
0″	61.383		60.306		59.266		58.261		57.290		56.351		55.442		54.561		60″
1	365	18	288	18	249	17	245	16	274	16	335	16	427	15	547	14	59
2	346	19	271	17	232	17	228	17	258	16	320	15	412	15	532	15	58
3	328	18	253	18	215	17	212	16	242	16	304	16	397	15	518	14	57
4	310	18	235	18	198	17	195	17	226	16	289	15	382	15	504	14	56
5	292	18	218	17	181	17	179	16	210	16	274	15	367	15	489	15	55
6	273	19	200	18	164	17	163	16	195	15	258	16	352	15	475	14	54
7	255	18	183	17	147	17	146	17	179	16	243	15	337	15	460	15	53
8	237	18	165	18	130	17	130	16	163	16	228	15	323	14	446	14	52
9	219	18	148	17	113	17	113	17	147	16	212	16	308	15	432	14	51
10	61.201	18	60.130	18	59.096	17	58.097	16	57.131	16	56.197	15	55.293	15	54.417	15	50
11	183	18	112	18	079	17	081	16	115	16	182	15	278	15	403	14	49
12	164	19	095	17	062	17	064	17	100	15	166	16	263	15	389	14	48
13	146	18	077	18	045	17	048	16	084	16	151	15	248	15	374	15	47
14	128	18	060	17	028	17	032	16	068	16	136	15	234	14	360	14	46
15	110	18	042	18	59.011	17	58.015	17	052	16	121	15	219	15	346	14	45
16	092	18	025	17	58.995	16	57.999	16	036	16	105	16	204	15	331	15	44
17	074	18	60.007	18	978	17	983	16	021	15	090	15	189	15	317	14	43
18	056	18	59.990	17	961	17	966	17	57.005	16	075	15	174	15	303	14	42
19	038	18	973	17	944	17	950	16	56.989	16	060	15	160	14	288	15	41
20	61.020	18	59.955	18	58.927	17	57.934	16	56.973	16	56.044	16	55.145	15	54.274	14	40
21	61.002	18	938	17	910	17	918	16	958	15	029	15	130	15	260	14	39
22	60.984	18	920	18	893	17	901	17	942	16	56.014	15	115	15	246	14	38
23	966	18	903	17	877	16	885	16	926	16	55.999	15	101	14	231	15	37
24	947	19	885	18	860	17	869	16	910	16	983	16	086	15	217	14	36
25	929	18	868	17	843	17	853	16	895	15	968	15	071	15	203	14	35
26	911	18	851	17	826	17	836	17	879	16	953	15	057	14	188	15	34
27	893	18	833	18	810	16	820	16	863	16	938	15	042	15	174	14	33
28	876	17	816	17	793	17	804	16	848	15	923	15	027	15	160	14	32
29	858	18	799	17	776	17	788	16	832	16	908	15	55.013	14	146	14	31
30	60.840	18	59.781	18	58.759	17	57.771	17	56.816	16	55.892	16	54.998	15	54.132	14	30
31	822	18	764	17	742	17	755	16	801	15	877	15	983	15	117	15	29
32	804	18	747	17	726	16	739	16	785	16	862	15	969	14	103	14	28
33	786	18	729	18	709	17	723	16	769	16	847	15	954	15	089	14	27
34	768	18	712	17	692	17	707	16	754	15	832	15	939	15	075	14	26
35	750	18	695	17	676	16	691	16	738	16	817	15	925	14	061	14	25
36	732	18	678	17	659	17	675	16	723	15	802	15	910	15	046	15	24
37	714	18	660	18	642	17	658	17	707	16	787	15	895	15	032	14	23
38	696	18	643	17	626	16	642	16	691	16	771	16	881	14	018	14	22
39	678	18	626	17	609	17	626	16	676	15	756	15	866	15	54.004	14	21
40	60.661	17	59.609	17	58.592	17	57.610	16	56.660	16	55.741	15	54.852	14	53.990	14	20
41	643	18	591	18	576	16	594	16	645	15	726	15	837	15	976	14	19
42	625	18	574	17	559	17	578	16	629	16	711	15	822	15	962	14	18
43	607	18	557	17	542	17	562	16	614	15	696	15	808	14	947	15	17
44	589	18	540	17	526	16	546	16	598	16	681	15	793	15	933	14	16
45	572	17	522	18	509	17	530	16	583	15	666	15	779	14	919	14	15
46	554	18	505	17	493	16	514	16	567	16	651	15	764	15	905	14	14
47	536	18	488	17	476	17	498	16	551	16	636	15	750	14	891	14	13
48	518	18	471	17	459	17	482	16	536	15	621	15	735	15	877	14	12
49	500	18	454	17	443	16	466	16	520	16	606	15	721	14	863	14	11
50	60.483	17	59.437	17	58.426	17	57.450	16	56.505	15	55.591	15	54.706	15	53.849	14	10
51	465	18	420	17	410	16	434	16	490	15	576	15	692	14	835	14	9
52	447	18	402	18	393	17	418	16	474	16	561	15	677	15	821	14	8
53	430	17	385	17	377	16	402	16	459	15	546	15	663	14	807	14	7
54	412	18	368	17	360	17	386	16	443	16	531	15	648	15	793	14	6
55	394	18	351	17	344	16	370	16	428	15	516	15	634	14	779	14	5
56	376	18	334	17	327	17	354	16	412	16	501	15	619	15	765	14	4
57	359	17	317	17	311	16	338	16	397	15	486	15	605	14	751	14	3
58	341	18	300	17	294	17	322	16	381	16	471	15	590	15	737	14	2
59	323	18	283	17	278	16	306	16	366	15	456	15	576	14	723	14	1
60	60.306	17	59.266	17	58.261	17	57.290	16	56.351	15	55.442	14	54.561	15	53.709	14	0
	3′		2′		1′		0′		59′		58′		57′		56′		

tang 89° — tang 88°

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	cosec 0°								cosec 1°								
	56′		57′		58′		59′		0′		1′		2′		3′		
0″	61.391		60.314		59.274		58.270		57.299		56.359		55.451		54.570		60″
1	373	18	296	18	257	17	253	17	283	16	344	15	436	15	556	14	59
2	355	18	279	17	240	17	237	16	267	16	329	15	421	15	542	14	58
3	336	19	261	18	223	17	220	17	251	16	313	16	406	15	527	15	57
4	318	18	244	17	206	17	204	16	235	16	298	15	391	15	513	14	56
5	300	18	226	18	189	17	188	16	219	16	283	15	376	15	498	15	55
6	282	18	208	18	172	17	171	17	203	16	267	16	361	15	484	14	54
7	263	19	191	17	155	17	155	16	188	15	252	15	346	15	470	14	53
8	245	18	173	18	138	17	138	17	172	16	237	15	332	14	455	15	52
9	227	18	156	17	121	17	122	16	156	16	221	16	317	15	441	14	51
10	61.209	18	60.138	18	59.104	17	58.106	16	57.140	16	56.206	15	55.302	15	54.426	15	50
11	191	18	121	17	088	16	089	17	124	16	191	15	287	15	412	14	49
12	173	18	103	18	071	17	073	16	108	16	175	16	272	15	398	14	48
13	154	19	086	17	054	17	057	16	093	15	160	15	257	15	383	15	47
14	136	18	068	18	037	17	040	17	077	16	145	15	243	14	369	14	46
15	118	18	051	17	020	17	024	16	061	16	129	16	228	15	355	14	45
16	100	18	033	18	59.003	17	58.008	16	045	16	114	15	213	15	340	15	44
17	082	18	60.016	17	58.986	17	57.991	17	029	16	099	15	198	15	326	14	43
18	064	18	59.998	18	969	17	975	16	57.014	15	084	15	184	14	312	14	42
19	046	18	981	17	952	17	959	16	56.998	16	068	16	169	15	298	14	41
20	61.028	18	59.963	18	58.936	16	57.942	17	56.982	16	56.053	15	55.154	15	54.283	15	40
21	61.010	18	946	17	919	17	926	16	966	16	038	15	139	15	269	14	39
22	60.992	18	929	17	902	17	910	16	951	15	023	15	125	14	255	14	38
23	974	18	911	18	885	17	894	16	935	16	56.008	15	110	15	240	15	37
24	956	18	894	17	868	17	877	17	919	16	55.992	16	095	15	226	14	36
25	938	18	876	18	852	16	861	16	904	15	977	15	080	15	212	14	35
26	920	18	859	17	835	17	845	16	888	16	962	15	066	14	198	14	34
27	902	18	842	17	818	17	829	16	872	16	947	15	051	15	183	15	33
28	884	18	824	18	801	17	813	16	857	15	932	15	036	15	169	14	32
29	866	18	807	17	784	17	796	17	841	16	916	16	022	14	155	14	31
30	60.848	18	59.790	17	58.768	16	57.780	16	56.825	16	55.901	15	55.007	15	54.141	14	30
31	830	18	772	18	751	17	764	16	810	15	886	15	54.992	15	127	14	29
32	812	18	755	17	734	17	748	16	794	16	871	15	978	14	112	15	28
33	794	18	738	17	718	16	732	16	778	16	856	15	963	15	098	14	27
34	776	18	720	18	701	17	715	17	763	15	841	15	948	15	084	14	26
35	758	18	703	17	684	17	699	16	747	16	826	15	934	14	070	14	25
36	740	18	686	17	667	17	683	16	731	16	811	15	919	15	056	14	24
37	722	18	669	17	651	16	667	16	716	15	795	16	905	14	042	14	23
38	705	17	651	18	634	17	651	16	700	16	780	15	890	15	027	15	22
39	687	18	634	17	617	17	635	16	685	15	765	15	875	15	54.013	14	21
40	60.669	18	59.617	17	58.601	16	57.619	16	56.669	16	55.750	15	54.861	14	53.999	14	20
41	651	18	600	17	584	17	603	16	654	15	735	15	846	15	985	14	19
42	633	18	582	18	568	16	587	16	638	16	720	15	832	14	971	14	18
43	615	18	565	17	551	17	571	16	622	16	705	15	817	15	957	14	17
44	598	17	548	17	534	17	554	17	607	15	690	15	802	15	943	14	16
45	580	18	531	17	518	16	538	16	591	16	675	15	788	14	929	14	15
46	562	18	514	17	501	17	522	16	576	15	660	15	773	15	914	15	14
47	544	18	497	17	485	16	506	16	560	16	645	15	759	14	900	14	13
48	526	18	479	18	468	17	490	16	545	15	630	15	744	15	886	14	12
49	509	17	462	17	451	17	474	16	529	16	615	15	730	14	872	14	11
50	60.491	18	59.445	17	58.435	16	57.458	16	56.514	15	55.600	15	54.715	15	53.858	14	10
51	473	18	428	17	418	17	442	16	498	16	585	15	701	14	844	14	9
52	456	17	411	17	402	16	426	16	483	15	570	15	686	15	830	14	8
53	438	18	394	17	385	17	410	16	467	16	555	15	672	14	816	14	7
54	420	18	377	17	369	16	394	16	452	15	540	15	657	15	802	14	6
55	402	18	360	17	352	17	378	16	437	15	525	15	643	14	788	14	5
56	385	17	343	17	336	16	362	16	421	16	510	15	628	15	774	14	4
57	367	18	325	18	319	17	346	16	406	15	495	15	614	14	760	14	3
58	349	18	308	17	303	16	331	15	390	16	480	15	599	15	746	14	2
59	332	17	291	17	286	17	315	16	375	15	465	15	585	14	732	14	1
60	60.314	18	59.274	17	58.270	16	57.299	16	56.359	16	55.451	14	54.570	15	53.718	14	0
	3′		2′		1′		0′		59′		58′		57′		56′		
	sec 89°								sec 88°								

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cotg 1°

	4′		5′		6′		7′		8′		9′		10′		11′		
0″	53.709		52.882		52.081		51.303		50.549		49.816		49.104		48.412		60″
1	695	14	869	13	068	13	290	13	536	13	804	12	092	12	401	11	59
2	681	14	855	14	054	14	278	12	524	12	792	12	081	11	389	12	58
3	667	14	841	14	041	13	265	13	511	13	780	12	069	12	378	11	57
4	653	14	828	13	028	13	252	13	499	12	768	12	057	12	367	11	56
5	639	14	814	14	015	13	239	13	487	12	756	12	045	12	355	12	55
6	625	14	801	13	52.002	13	227	12	474	13	744	12	034	11	344	11	54
7	611	14	787	14	51.989	13	214	13	462	12	732	12	022	12	333	11	53
8	597	14	774	13	976	13	201	13	450	12	720	12	49.011	11	321	12	52
9	583	14	760	14	963	13	189	12	437	13	708	12	48.999	12	310	11	51
10	53.569	14	52.747	13	51.949	14	51.176	13	50.425	12	49.696	12	48.987	12	48.299	11	50
11	555	14	733	14	936	13	163	13	413	12	684	12	976	11	287	12	49
12	541	14	720	13	923	13	150	13	400	13	672	12	964	12	276	11	48
13	527	14	706	14	910	13	138	12	388	12	660	12	952	12	265	11	47
14	513	14	693	13	897	13	125	13	376	12	648	12	941	11	253	12	46
15	500	13	679	14	884	13	112	13	363	13	636	12	929	12	242	11	45
16	486	14	666	13	871	13	100	12	351	12	624	12	917	12	231	11	44
17	472	14	653	13	858	13	087	13	339	12	612	12	906	11	220	11	43
18	458	14	639	14	845	13	074	13	326	13	600	12	894	12	208	12	42
19	444	14	626	13	832	13	062	12	314	12	588	12	883	11	197	11	41
20	53.430	14	52.612	14	51.819	13	51.049	13	50.302	12	49.576	12	48.871	12	48.186	11	40
21	416	14	599	13	806	13	036	13	290	12	564	12	860	11	175	11	39
22	403	13	585	14	793	13	024	12	277	13	552	12	848	12	163	12	38
23	389	14	572	13	780	13	51.011	13	265	12	540	12	836	12	152	11	37
24	375	14	559	13	767	13	50.999	12	253	12	529	11	825	11	141	11	36
25	361	14	545	14	754	13	986	13	241	12	517	12	813	12	130	11	35
26	347	14	532	13	741	13	973	13	228	13	505	12	802	11	118	12	34
27	333	14	518	14	728	13	961	12	216	12	493	12	790	12	107	11	33
28	320	13	505	13	715	13	948	13	204	12	481	12	779	11	096	11	32
29	306	14	492	13	702	13	936	12	192	12	469	12	767	12	085	11	31
30	53.292	14	52.478	14	51.689	13	50.923	13	50.179	13	49.457	12	48.756	11	48.073	12	30
31	278	14	465	13	676	13	910	13	167	12	445	12	744	12	062	11	29
32	265	13	452	13	663	13	898	12	155	12	434	11	732	12	051	11	28
33	251	14	438	14	650	13	885	13	143	12	422	12	721	11	040	11	27
34	237	14	425	13	637	13	873	12	131	12	410	12	709	12	029	11	26
35	223	14	412	13	624	13	860	13	118	13	398	12	698	11	017	12	25
36	210	13	398	14	611	13	848	12	106	12	386	12	686	12	48.006	11	24
37	196	14	385	13	598	13	835	13	094	12	374	12	675	11	47.995	11	23
38	182	14	372	13	586	12	823	12	082	12	363	11	663	12	984	11	22
39	168	14	358	14	573	13	810	13	070	12	351	12	652	11	973	11	21
40	53.155	13	52.345	13	51.560	13	50.798	12	50.058	12	49.339	12	48.641	11	47.962	11	20
41	141	14	332	13	547	13	785	13	045	13	327	12	629	12	950	12	19
42	127	14	319	13	534	13	773	12	033	12	315	12	618	11	939	11	18
43	114	13	305	14	521	13	760	13	021	12	303	12	606	12	928	11	17
44	100	14	292	13	508	13	748	12	50.009	12	292	11	595	11	917	11	16
45	086	14	279	13	495	13	735	13	49.997	12	280	12	583	12	906	11	15
46	073	13	265	14	482	13	723	12	985	12	268	12	572	11	895	11	14
47	059	14	252	13	470	12	710	13	973	12	256	12	560	12	884	11	13
48	045	14	239	13	457	13	698	12	961	12	245	11	549	11	873	11	12
49	032	13	226	13	444	13	685	13	948	13	233	12	537	12	861	12	11
50	53.018	14	52.213	13	51.431	13	50.673	12	49.936	12	49.221	12	48.526	11	47.850	11	10
51	53.004	14	199	14	418	13	660	13	924	12	209	12	515	11	839	11	9
52	52.991	13	186	13	405	13	648	12	912	12	198	11	503	12	828	11	8
53	977	14	173	13	393	12	635	13	900	12	186	12	492	11	817	11	7
54	964	13	160	13	380	13	623	12	888	12	174	12	480	12	806	11	6
55	950	14	147	13	367	13	611	12	876	12	162	12	469	11	795	11	5
56	936	14	133	14	354	13	598	13	864	12	151	11	458	11	784	11	4
57	923	13	120	13	341	13	586	12	852	12	139	12	446	12	773	11	3
58	909	14	107	13	329	12	573	13	840	12	127	12	435	11	762	11	2
59	896	13	094	13	316	13	561	12	828	12	116	11	423	12	751	11	1
60	52.882	14	52.081	13	51.303	13	50.549	12	49.816	12	49.104	12	48.412	11	47.740	11	0
	55′		54′		53′		52′		51′		50′		49′		48′		

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13	
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9	12.6

tang 88°

cosec 1°

	4′		5′		6′		7′		8′		9′		10′		11′		
0″	53.718		52.892		52.090		51.313		50.558		49.826		49.114		48.422		**60″**
1	704	14	878	14	077	13	300	13	546	12	814	12	102	12	411	11	59
2	690	14	864	14	064	13	287	13	534	12	802	12	091	11	400	11	58
3	676	14	851	13	051	13	275	12	521	13	790	12	079	12	388	12	57
4	662	14	837	14	038	13	262	13	509	12	778	12	067	12	377	11	56
5	648	14	824	13	025	13	249	13	497	12	766	12	056	11	366	11	55
6	634	14	810	14	52.011	14	236	13	484	13	754	12	044	12	354	12	54
7	620	14	797	13	51.998	13	224	12	472	12	742	12	032	12	343	11	53
8	606	14	783	14	985	13	211	13	459	13	730	12	021	11	332	11	52
9	592	14	770	13	972	13	198	13	447	12	718	12	49.009	12	320	12	51
10	53.578	14	52.756	14	51.959	13	51.186	12	50.435	12	49.706	12	48.997	12	48.309	11	**50**
11	564	14	743	13	946	13	173	13	422	13	694	12	986	11	298	11	49
12	551	13	729	14	933	13	160	13	410	12	682	12	974	12	286	12	48
13	537	14	716	13	920	13	148	12	398	12	670	12	963	11	275	11	47
14	523	14	702	14	907	13	135	13	386	12	658	12	951	12	264	11	46
15	509	14	689	13	894	13	122	13	373	13	646	12	939	12	253	11	45
16	495	14	675	14	881	13	110	12	361	12	634	12	928	11	241	12	44
17	481	14	662	13	868	13	097	13	349	12	622	12	916	12	230	11	43
18	467	14	649	13	855	13	084	13	336	13	610	12	905	11	219	11	42
19	453	14	635	14	842	13	072	12	324	12	598	12	893	12	207	12	41
20	53.440	13	52.622	13	51.829	13	51.059	13	50.312	12	49.586	12	48.881	12	48.196	11	**40**
21	426	14	608	14	816	13	046	13	300	12	574	12	870	11	185	11	39
22	412	14	595	13	803	13	034	12	287	13	562	12	858	12	174	11	38
23	398	14	582	13	790	13	021	13	275	12	551	11	847	11	162	12	37
24	384	14	568	14	777	13	51.008	13	263	12	539	12	835	12	151	11	36
25	370	14	555	13	764	13	50.996	12	251	12	527	12	823	12	140	11	35
26	357	13	541	14	751	13	983	13	238	13	515	12	812	11	129	11	34
27	343	14	528	13	738	13	971	12	226	12	503	12	800	12	117	12	33
28	329	14	515	13	725	13	958	13	214	12	491	12	789	11	106	11	32
29	315	14	501	14	712	13	945	13	202	12	479	12	777	12	095	11	31
30	53.302	13	52.488	13	51.699	13	50.933	12	50.189	13	49.467	12	48.766	11	48.084	11	**30**
31	288	14	475	13	686	13	920	13	177	12	455	12	754	12	073	11	29
32	274	14	461	14	673	13	908	12	165	12	444	11	743	11	061	12	28
33	260	14	448	13	660	13	895	13	153	12	432	12	731	12	050	11	27
34	246	14	434	14	647	13	883	12	141	12	420	12	720	11	039	11	26
35	233	13	421	13	634	13	870	13	128	13	408	12	708	12	028	11	25
36	219	14	408	13	621	13	858	12	116	12	396	12	697	11	017	11	24
37	205	14	395	13	608	13	845	13	104	12	384	12	685	12	48.006	11	23
38	192	13	381	14	595	13	832	13	092	12	373	11	674	11	47.994	12	22
39	178	14	368	13	582	13	820	12	080	12	361	12	662	12	983	11	21
40	53.164	14	52.355	13	51.569	13	50.807	13	50.068	12	49.349	12	48.651	11	47.972	11	**20**
41	150	14	341	14	557	12	795	12	055	13	337	12	639	12	961	11	19
42	137	13	328	13	544	13	782	13	043	12	325	12	628	11	950	11	18
43	123	14	315	13	531	13	770	12	031	12	314	11	616	12	939	11	17
44	109	14	302	13	518	13	757	13	019	12	302	12	605	11	927	12	16
45	096	13	288	14	505	13	745	12	50.007	12	290	12	593	12	916	11	15
46	082	14	275	13	492	13	732	13	49.995	12	278	12	582	11	905	11	14
47	068	14	262	13	479	13	720	12	983	12	267	11	571	11	894	11	13
48	055	13	249	13	467	12	708	12	971	12	255	12	559	12	883	11	12
49	041	14	235	14	454	13	695	13	958	13	243	12	548	11	872	11	11
50	53.028	13	52.222	13	51.441	13	50.683	12	49.946	12	49.231	12	48.536	12	47.861	11	**10**
51	014	14	209	13	428	13	670	13	934	12	220	11	525	11	850	11	9
52	53.000	14	196	13	415	13	658	12	922	12	208	12	514	11	839	11	8
53	52.987	13	183	13	402	13	645	13	910	12	196	12	502	12	827	12	7
54	973	14	169	14	390	12	633	12	898	12	184	12	491	11	816	11	6
55	959	14	156	13	377	13	620	13	886	12	173	11	479	12	805	11	5
56	946	13	143	13	364	13	608	12	874	12	161	12	468	11	794	11	4
57	932	14	130	13	351	13	596	12	862	12	149	12	457	11	783	11	3
58	919	13	117	13	338	13	583	13	850	12	137	12	445	12	772	11	2
59	905	14	103	14	326	12	571	12	838	12	126	11	434	11	761	11	1
60	52.892	13	52.090	13	51.313	13	50.558	13	49.826	12	49.114	12	48.422	12	47.750	11	**0**
	55′		54′		53′		52′		51′		50′		49′		48′		

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sec 88°

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	12′		13′		14′		15′		16′		17′		18′		19′		
0″	47.740		47.085		46.449		45.829		45.226		44.639		44.066		43.508		60″
1	728	12	075	10	438	11	819	10	216	10	629	10	057	9	499	9	59
2	717	11	064	11	428	10	809	10	206	10	619	10	047	10	490	9	58
3	706	11	053	11	417	11	799	10	196	10	610	9	038	9	481	9	57
4	695	11	042	11	407	10	789	10	186	10	600	10	028	10	471	10	56
5	684	11	032	10	397	10	778	11	177	9	590	10	019	9	462	9	55
6	673	11	021	11	386	11	768	10	167	10	581	9	010	9	453	9	54
7	662	11	47.010	11	376	10	758	10	157	10	571	10	44.000	10	444	9	53
8	651	11	46.999	11	365	11	748	10	147	10	561	10	43.991	9	435	9	52
9	640	11	989	10	355	10	738	10	137	10	552	9	982	9	426	9	51
10	47.629	11	46.978	11	46.344	11	45.728	10	45.127	10	44.542	10	43.972	10	43.416	10	50
11	618	11	967	11	334	10	718	10	117	10	533	9	963	9	407	9	49
12	607	11	957	10	324	10	707	11	107	10	523	10	953	10	398	9	48
13	596	11	946	11	313	11	697	10	098	9	513	10	944	9	389	9	47
14	585	11	935	11	303	10	687	10	088	10	504	9	935	9	380	9	46
15	574	11	925	10	292	11	677	10	078	10	494	10	925	10	371	9	45
16	563	11	914	11	282	10	667	10	068	10	484	10	916	9	362	9	44
17	552	11	903	11	272	10	657	10	058	10	475	9	907	9	353	9	43
18	541	11	893	10	261	11	647	10	048	10	465	10	897	10	343	10	42
19	530	11	882	11	251	10	637	10	038	10	456	9	888	9	334	9	41
20	47.519	11	46.871	11	46.241	10	45.627	10	45.029	9	44.446	10	43.879	9	43.325	9	40
21	508	11	861	10	230	11	616	11	019	10	437	9	869	10	316	9	39
22	498	10	850	11	220	10	606	10	45.009	10	427	10	860	9	307	9	38
23	487	11	839	11	209	11	596	10	44.999	10	417	10	851	9	298	9	37
24	476	11	829	10	199	10	586	10	989	10	408	9	841	10	289	9	36
25	465	11	818	11	189	10	576	10	979	10	398	10	832	9	280	9	35
26	454	11	807	11	178	11	566	10	970	9	389	9	823	9	271	9	34
27	443	11	797	10	168	10	556	10	960	10	379	10	813	10	262	9	33
28	432	11	786	11	158	10	546	10	950	10	370	9	804	9	253	9	32
29	421	11	776	10	147	11	536	10	940	10	360	10	795	9	243	10	31
30	47.410	11	46.765	11	46.137	10	45.526	10	44.930	10	44.351	9	43.785	10	43.234	9	30
31	399	11	754	11	127	10	516	10	921	9	341	10	776	9	225	9	29
32	388	11	744	10	116	11	506	10	911	10	331	10	767	9	216	9	28
33	377	11	733	11	106	10	496	10	901	10	322	9	757	10	207	9	27
34	367	10	723	10	096	10	486	10	891	10	312	10	748	9	198	9	26
35	356	11	712	11	085	11	476	10	882	9	303	9	739	9	189	9	25
36	345	11	701	11	075	10	466	10	872	10	293	10	730	9	180	9	24
37	334	11	691	10	065	10	455	11	862	10	284	9	720	10	171	9	23
38	323	11	680	11	055	10	445	10	852	10	274	10	711	9	162	9	22
39	312	11	670	10	044	11	435	10	842	10	265	9	702	9	153	9	21
40	47.301	11	46.659	11	46.034	10	45.425	10	44.833	9	44.255	10	43.693	9	43.144	9	20
41	291	10	649	10	024	10	415	10	823	10	246	9	683	10	135	9	19
42	280	11	638	11	013	11	405	10	813	10	236	10	674	9	126	9	18
43	269	11	627	11	46.003	10	395	10	804	9	227	9	665	9	117	9	17
44	258	11	617	10	45.993	10	385	10	794	10	217	10	656	9	108	9	16
45	247	11	606	11	983	10	375	10	784	10	208	9	646	10	099	9	15
46	236	11	596	10	972	11	365	10	774	10	198	10	637	9	090	9	14
47	226	10	585	11	962	10	355	10	765	9	189	9	628	9	081	9	13
48	215	11	575	10	952	10	346	9	755	10	179	10	619	9	072	9	12
49	204	11	564	11	942	10	336	10	745	10	170	9	609	10	063	9	11
50	47.193	11	46.554	10	45.931	11	45.326	10	44.735	10	44.161	9	43.600	9	43.054	9	10
51	182	11	543	11	921	10	316	10	726	9	151	10	591	9	045	9	9
52	172	10	533	10	911	10	306	10	716	10	142	9	582	9	036	9	8
53	161	11	522	11	901	10	296	10	706	10	132	10	572	10	027	9	7
54	150	11	512	10	891	10	286	10	697	9	123	9	563	9	018	9	6
55	139	11	501	11	880	11	276	10	687	10	113	10	554	9	009	9	5
56	128	11	491	10	870	10	266	10	677	10	104	9	545	9	43.000	9	4
57	118	10	480	11	860	10	256	10	668	9	094	10	536	9	42.991	9	3
58	107	11	470	10	850	10	246	10	658	10	085	9	526	10	982	9	2
59	096	11	459	11	840	10	236	10	648	10	076	9	517	9	973	9	1
60	47.085	11	46.449	10	45.829	11	45.226	10	44.639	9	44.066	10	43.508	9	42.964	9	0
	47′		46′		45′		44′		43′		42′		41′		40′		

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tang 88°

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	12′		13′		14′		15′		16′		17′		18′		19′		
0″	47·750		47·096		46·460		45·840		45·237		44·650		44·077		43·520		**60″**
1	739	11	085	11	449	11	830	10	227	10	640	10	068	9	510	10	59
2	728	11	074	11	439	10	820	10	217	10	630	10	059	9	501	9	58
3	717	11	064	10	428	11	810	10	207	10	621	9	049	10	492	9	57
4	706	11	053	11	418	10	800	10	198	9	611	10	040	9	483	9	56
5	695	11	042	11	407	11	789	11	188	10	602	9	030	10	474	9	55
6	684	11	032	10	397	10	779	10	178	10	592	10	021	9	465	9	54
7	673	11	021	11	387	10	769	10	168	10	582	10	012	9	455	10	53
8	662	11	47·010	11	376	11	759	10	158	10	573	9	44·002	10	446	9	52
9	651	11	46·999	11	366	10	749	10	148	10	563	10	43·993	9	437	9	51
10	47·640	11	46·989	10	46·355	11	45·739	10	45·138	10	44·553	10	43·983	10	43·428	9	**50**
11	629	11	978	11	345	10	728	11	128	10	544	9	974	9	419	9	49
12	618	11	967	11	334	11	718	10	118	10	534	10	965	9	410	9	48
13	607	11	957	10	324	10	708	10	109	9	525	9	955	10	401	9	47
14	596	11	946	11	314	10	698	10	099	10	515	10	946	9	391	10	46
15	585	11	935	11	303	11	688	10	089	10	505	10	937	9	382	9	45
16	574	11	925	10	293	10	678	10	079	10	496	9	927	10	373	9	44
17	563	11	914	11	282	11	668	10	069	10	486	10	918	9	364	9	43
18	552	11	903	11	272	10	658	10	059	10	477	9	909	9	355	9	42
19	541	11	893	10	262	10	648	10	050	9	467	10	899	10	346	9	41
20	47·530	11	46·882	11	46·251	11	45·637	11	45·040	10	44·457	10	43·890	9	43·337	9	**40**
21	519	11	871	11	241	10	627	10	030	10	448	9	881	9	328	9	39
22	508	11	861	10	231	10	617	10	020	10	438	10	871	10	319	9	38
23	497	11	850	11	220	11	607	10	010	10	429	9	862	9	309	10	37
24	486	11	839	11	210	10	597	10	45·000	10	419	10	853	9	300	9	36
25	475	11	829	10	200	10	587	10	44·991	9	410	9	843	10	291	9	35
26	464	11	818	11	189	11	577	10	981	10	400	10	834	9	282	9	34
27	453	11	807	11	179	10	567	10	971	10	390	10	825	9	273	9	33
28	443	10	797	10	169	10	557	10	961	10	381	9	815	10	264	9	32
29	432	11	786	11	158	11	547	10	951	10	371	10	806	9	255	9	31
30	47·421	11	46·776	10	46·148	10	45·537	10	44·942	9	44·362	9	43·797	9	43·246	9	**30**
31	410	11	765	11	138	11	527	10	932	10	352	10	787	10	237	9	29
32	399	11	754	11	127	11	517	10	922	10	343	9	778	9	228	9	28
33	388	11	744	10	117	10	507	10	912	10	333	10	769	9	219	9	27
34	377	11	733	11	107	10	497	10	902	10	324	9	760	9	210	9	26
35	366	11	723	10	096	11	487	10	893	9	314	10	750	10	201	9	25
36	355	11	712	11	086	10	477	10	883	10	305	9	741	9	192	9	24
37	345	10	702	10	076	10	466	11	873	10	295	10	732	9	183	9	23
38	334	11	691	11	065	11	456	10	863	10	286	9	723	9	174	9	22
39	323	11	680	11	055	10	446	10	854	9	276	10	713	10	165	9	21
40	47·312	11	46·670	10	46·045	10	45·436	10	44·844	10	44·267	9	43·704	9	43·155	10	**20**
41	301	11	659	11	035	10	426	10	834	10	257	10	695	9	146	9	19
42	290	11	649	10	024	11	416	10	824	10	248	9	685	10	137	9	18
43	279	11	638	11	014	10	406	10	815	9	238	10	676	9	128	9	17
44	269	10	628	10	46·004	10	396	10	805	10	229	9	667	9	119	9	16
45	258	11	617	11	45·994	10	386	10	795	10	219	10	658	9	110	9	15
46	247	11	607	10	983	11	376	10	785	10	210	9	649	9	101	9	14
47	236	11	596	11	973	10	367	9	776	9	200	10	639	10	092	9	13
48	225	11	586	10	963	10	357	10	766	10	191	9	630	9	083	9	12
49	215	10	575	11	953	10	347	10	756	10	181	10	621	9	074	9	11
50	47·204	11	46·564	11	45·942	11	45·337	10	44·747	9	44·172	9	43·612	9	43·065	9	**10**
51	193	11	554	10	932	10	327	10	737	10	162	10	602	10	056	9	9
52	182	11	543	11	922	10	317	10	727	10	153	9	593	9	047	9	8
53	171	11	533	10	912	10	307	10	718	9	143	10	584	9	038	9	7
54	161	10	522	11	901	11	297	10	708	10	134	9	575	9	029	9	6
55	150	11	512	10	891	10	287	10	698	10	125	9	566	9	021	8	5
56	139	11	502	10	881	10	277	10	688	10	115	10	556	10	012	9	4
57	128	11	491	11	871	10	267	10	679	9	106	9	547	9	43·003	9	3
58	117	11	481	10	861	10	257	10	669	10	096	10	538	9	42·994	9	2
59	107	10	470	11	850	11	247	10	659	10	087	9	529	9	985	9	1
60	47·096	11	46·460	10	45·840	10	45·237	10	44·650	9	44·077	10	43·520	9	42·976	9	**0**
	47′		46′		45′		44′		43′		42′		41′		40′		

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5	4.5
6	5.4
7	6.3
8	7.2
9	8.1

10	
1	1.0
2	2.0
3	3.0
4	4.0
5	5.0
6	6.0
7	7.0
8	8.0
9	9.0

11	
1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

sec 88°

0°

	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
0′ 0″	0.000000		0.000000		1.000000	∞	206265″	∞	206265″	1.000000	**60′** 0″
10	0048	48	0048	48	0000	20626.481	6265	20626.481	6265	0000	50
20	0097	49	0097	49	0000	10313.240	6265	10313.240	6265	0000	40
30	0145	48	0145	48	0000	6875.494	6265	6875.493	6265	0000	30
40	0194	49	0194	49	0000	5156.620	6265	5156.620	6265	0000	20
50	0242	48	0242	48	0000	4125.296	6265	4125.296	6265	0000	10
1 0	0.000291	49	0.000291	49	1.000000	3437.747	206265	3437.747	206265	1.000000	**59** 0
10	0339	48	0339	48	0000	2946.640	6265	2946.640	6265	0000	50
20	0388	49	0388	49	0000	2578.310	6265	2578.310	6265	0000	40
30	0436	48	0436	48	0000	2291.831	6265	2291.831	6265	0000	30
40	0485	49	0485	49	0000	2062.648	6265	2062.648	6265	0000	20
50	0533	48	0533	48	0000	1875.135	6265	1875.134	6265	0000	10
2 0	0.000582	49	0.000582	49	1.000000	1718.873	206265	1718.873	206265	1.000000	**58** 0
10	0630	48	0630	48	0000	1586.652	6265	1586.652	6265	0000	50
20	0679	49	0679	49	0000	1473.320	6265	1473.320	6265	0000	40
30	0727	48	0727	48	0000	1375.099	6265	1375.098	6265	0000	30
40	0776	49	0776	49	0000	1289.155	6265	1289.155	6265	0000	20
50	0824	48	0824	48	0000	1213.323	6265	1213.322	6265	0000	10
3 0	0.000873	49	0.000873	49	1.000000	1145.916	206265	1145.915	206265	1.000000	**57** 0
10	0921	48	0921	48	0000	1085.604	6265	1085.604	6265	0000	50
20	0970	49	0970	49	0000	1031.324	6265	1031.324	6265	1.000000	40
30	1018	48	1018	48	0001	982.214	6265	982.213	6265	0.999999	30
40	1067	49	1067	49	0001	937.567	6265	937.567	6265	9999	20
50	1115	48	1115	48	0001	896.804	6265	896.803	6265	9999	10
4 0	0.001164	49	0.001164	49	1.000001	859.437	206265	859.436	206265	0.999999	**56** 0
10	1212	48	1212	48	0001	825.059	6265	825.059	6265	9999	50
20	1261	49	1261	49	0001	793.326	6265	793.326	6265	9999	40
30	1309	48	1309	48	0001	763.944	6265	763.943	6265	9999	30
40	1357	48	1357	48	0001	736.660	6265	736.660	6265	9999	20
50	1406	49	1406	49	0001	711.258	6265	711.257	6265	9999	10
5 0	0.001454	48	0.001454	48	1.000001	687.550	206265	687.549	206265	0.999999	**55** 0
10	1503	49	1503	49	0001	665.371	6265	665.370	6265	9999	50
20	1551	48	1551	48	0001	644.578	6265	644.577	6265	9999	40
30	1600	49	1600	49	0001	625.045	6265	625.044	6265	9999	30
40	1648	48	1648	48	0001	606.661	6265	606.661	6265	9999	20
50	1697	49	1697	49	0001	589.328	6265	589.327	6265	9999	10
6 0	0.001745	48	0.001745	48	1.000002	572.958	206265	572.957	206265	0.999998	**54** 0
10	1794	49	1794	49	0002	557.473	6265	557.472	6265	9998	50
20	1842	48	1842	48	0002	542.802	6265	542.802	6265	9998	40
30	1891	49	1891	49	0002	528.884	6265	528.883	6265	9998	30
40	1939	48	1939	48	0002	515.662	6265	515.661	6265	9998	20
50	1988	49	1988	49	0002	503.085	6265	503.084	6265	9998	10
7 0	0.002036	48	0.002036	48	1.000002	491.107	206265	491.106	206265	0.999998	**53** 0
10	2085	49	2085	49	0002	479.686	6265	479.685	6265	9998	50
20	2133	48	2133	48	0002	468.784	6265	468.783	6264	9998	40
30	2182	49	2182	49	0002	458.367	6265	458.366	6264	9998	30
40	2230	48	2230	48	0002	448.402	6265	448.401	6264	9998	20
50	2279	49	2279	49	0003	438.862	6265	438.861	6264	9997	10
8 0	0.002327	48	0.002327	48	1.000003	429.719	206265	429.718	206264	0.999997	**52** 0
10	2376	49	2376	49	0003	420.949	6265	420.948	6264	9997	50
20	2424	48	2424	48	0003	412.530	6265	412.529	6264	9997	40
30	2473	49	2473	49	0003	404.441	6265	404.440	6264	9997	30
40	2521	48	2521	48	0003	396.664	6265	396.662	6264	9997	20
50	2570	49	2570	49	0003	389.179	6265	389.178	6264	9997	10
9 0	0.002618	48	0.002618	48	1.000003	381.972	206265	381.971	206264	0.999997	**51** 0
10	2666	48	2666	48	0004	375.027	6265	375.026	6264	9996	50
20	2715	49	2715	49	0004	368.330	6265	368.329	6264	9996	40
30	2763	48	2763	48	0004	361.869	6265	361.867	6264	9996	30
40	2812	49	2812	49	0004	355.629	6265	355.628	6264	9996	20
50	2860	48	2860	48	0004	349.602	6265	349.600	6264	9996	10
10 0	0.002909	49	0.002909	49	1.000004	343.775	206265	343.774	206264	0.999996	**50** 0
	cos		cotg		cosec	sec		tang		sin	

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

89°

0°

	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
10′ 0″	0.002909		0.002909		1.000004	343.775	206265″	343.774	206264″	0.999996	**50′** 0″
10	2957	48	2957	48	0004	338.140	6265	338.138	6264	9996	50
20	3006	49	3006	49	0005	332.686	6265	332.684	6264	9995	40
30	3054	48	3054	48	0005	327.405	6265	327.403	6264	9995	30
40	3103	49	3103	49	0005	322.289	6265	322.288	6264	9995	20
50	3151	48	3151	48	0005	317.331	6265	317.329	6264	9995	10
11 0	0.003200	49	0.003200	49	1.000005	312.523	206265	312.521	206264	0.999995	**49** 0
10	3248	48	3248	48	0005	307.858	6265	307.857	6264	9995	50
20	3297	49	3297	49	0005	303.331	6265	303.329	6264	9995	40
30	3345	48	3345	48	0006	298.935	6265	298.933	6264	9994	30
40	3394	49	3394	49	0006	294.665	6265	294.663	6264	9994	20
50	3442	48	3442	48	0006	290.514	6265	290.513	6264	9994	10
12 0	0.003491	49	0.003491	49	1.000006	286.479	206265	286.478	206264	0.999994	**48** 0
10	3539	48	3539	48	0006	282.555	6265	282.553	6264	9994	50
20	3588	49	3588	49	0006	278.737	6265	278.735	6264	9994	40
30	3636	48	3636	48	0007	275.020	6265	275.019	6264	9993	30
40	3685	49	3685	49	0007	271.402	6265	271.400	6264	9993	20
50	3733	48	3733	48	0007	267.877	6265	267.875	6264	9993	10
13 0	0.003782	49	0.003782	49	1.000007	264.443	206265	264.441	206264	0.999993	**47** 0
10	3830	48	3830	48	0007	261.095	6265	261.093	6264	9993	50
20	3878	48	3879	49	0008	257.832	6265	257.830	6264	9992	40
30	3927	49	3927	48	0008	254.649	6265	254.647	6264	9992	30
40	3975	48	3975	48	0008	251.543	6265	251.541	6264	9992	20
50	4024	49	4024	49	0008	248.512	6265	248.510	6264	9992	10
14 0	0.004072	48	0.004072	48	1.000008	245.554	206265	245.552	206264	0.999992	**46** 0
10	4121	49	4121	49	0008	242.665	6265	242.663	6264	9992	50
20	4169	48	4169	48	0009	239.843	6265	239.841	6264	9991	40
30	4218	49	4218	49	0009	237.087	6265	237.085	6264	9991	30
40	4266	48	4266	48	0009	234.393	6265	234.390	6264	9991	20
50	4315	49	4315	49	0009	231.759	6265	231.757	6264	9991	10
15 0	0.004363	48	0.004363	48	1.000010	229.184	206265	229.182	206263	0.999990	**45** 0
10	4412	49	4412	49	0010	226.665	6265	226.663	6263	9990	50
20	4460	48	4460	48	0010	224.202	6265	224.199	6263	9990	40
30	4509	49	4509	49	0010	221.791	6266	221.789	6263	9990	30
40	4557	48	4557	48	0010	219.431	6266	219.429	6263	9990	20
50	4606	49	4606	49	0011	217.122	6266	217.119	6263	9989	10
16 0	0.004654	48	0.004654	48	1.000011	214.860	206266	214.858	206263	0.999989	**44** 0
10	4703	49	4703	49	0011	212.645	6266	212.643	6263	9989	50
20	4751	48	4751	48	0011	210.475	6266	210.473	6263	9989	40
30	4800	49	4800	49	0012	208.349	6266	208.347	6263	9988	30
40	4848	48	4848	48	0012	206.266	6266	206.263	6263	9988	20
50	4897	49	4897	49	0012	204.223	6266	204.221	6263	9988	10
17 0	0.004945	48	0.004945	48	1.000012	202.221	206266	202.219	206263	0.999988	**43** 0
10	4994	49	4994	49	0012	200.258	6266	200.255	6263	9988	50
20	5042	48	5042	48	0013	198.332	6266	198.330	6263	9987	40
30	5091	49	5091	49	0013	196.444	6266	196.441	6263	9987	30
40	5139	48	5139	48	0013	194.590	6266	194.588	6263	9987	20
50	5187	48	5188	49	0013	192.772	6266	192.769	6263	9987	10
18 0	0.005236	49	0.005236	48	1.000014	190.987	206266	190.984	206263	0.999986	**42** 0
10	5284	48	5285	49	0014	189.235	6266	189.232	6263	9986	50
20	5333	49	5333	48	0014	187.514	6266	187.512	6263	9986	40
30	5381	48	5381	48	0014	185.825	6266	185.822	6263	9986	30
40	5430	49	5430	49	0015	184.166	6266	184.163	6263	9985	20
50	5478	48	5478	48	0015	182.536	6266	182.533	6263	9985	10
19 0	0.005527	49	0.005527	49	1.000015	180.935	206266	180.932	206263	0.999985	**41** 0
10	5575	48	5575	48	0016	179.362	6266	179.359	6263	9984	50
20	5624	49	5624	49	0016	177.815	6266	177.813	6263	9984	40
30	5672	48	5672	48	0016	176.296	6266	176.293	6263	9984	30
40	5721	49	5721	49	0016	174.802	6266	174.799	6263	9984	20
50	5769	48	5769	48	0017	173.333	6266	173.330	6263	9983	10
20 0	0.005818	49	0.005818	49	1.000017	171.888	206266	171.885	206262	0.999983	**40** 0
	cos		cotg		cosec	sec		tang		sin	

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

89°

0°

	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
20′ 0″	0.005818		0.005818		1.000017	171.888	206266″	171.885	206262″	0.999983	**40′** 0″
10	5866	48	5866	48	0017	170.468	6266	170.465	6262	9983	50
20	5915	49	5915	49	0017	169.070	6266	169.068	6262	9983	40
30	5963	48	5963	48	0018	167.696	6266	167.693	6262	9982	30
40	6012	49	6012	49	0018	166.344	6266	166.341	6262	9982	20
50	6060	48	6060	48	0018	165.013	6266	165.010	6262	9982	10
21 0	0.006109	49	0.006109	49	1.000019	163.703	206266	163.700	206262	0.999981	**39** 0
10	6157	48	6157	48	0019	162.414	6266	162.411	6262	9981	50
20	6206	49	6206	49	0019	161.145	6266	161.142	6262	9981	40
30	6254	48	6254	48	0020	159.896	6266	159.893	6262	9980	30
40	6303	49	6303	49	0020	158.666	6266	158.663	6262	9980	20
50	6351	48	6351	48	0020	157.455	6266	157.452	6262	9980	10
22 0	0.006399	48	0.006400	49	1.000020	156.262	206266	156.259	206262	0.999980	**38** 0
10	6448	49	6448	48	0021	155.087	6266	155.084	6262	9979	50
20	6496	48	6497	49	0021	153.930	6266	153.927	6262	9979	40
30	6545	49	6545	48	0021	152.790	6266	152.787	6262	9979	30
40	6593	48	6594	49	0022	151.666	6266	151.663	6262	9978	20
50	6642	49	6642	48	0022	150.559	6266	150.556	6262	9978	10
23 0	0.006690	48	0.006691	49	1.000022	149.468	206266	149.465	206262	0.999978	**37** 0
10	6739	49	6739	48	0023	148.393	6266	148.390	6262	9977	50
20	6787	48	6787	48	0023	147.333	6266	147.330	6262	9977	40
30	6836	49	6836	49	0023	146.288	6266	146.285	6262	9977	30
40	6884	48	6884	48	0024	145.258	6266	145.255	6262	9976	20
50	6933	49	6933	49	0024	144.242	6266	144.239	6262	9976	10
24 0	0.006981	48	0.006981	48	1.000024	143.241	206266	143.237	206261	0.999976	**36** 0
10	7030	49	7030	49	0025	142.253	6267	142.249	6261	9975	50
20	7078	48	7078	48	0025	141.278	6267	141.275	6261	9975	40
30	7127	49	7127	49	0025	140.317	6267	140.314	6261	9975	30
40	7175	48	7175	48	0026	139.369	6267	139.366	6261	9974	20
50	7224	49	7224	49	0026	138.434	6267	138.430	6261	9974	10
25 0	0.007272	48	0.007272	48	1.000026	137.511	206267	137.507	206261	0.999974	**35** 0
10	7321	49	7321	49	0027	136.600	6267	136.597	6261	9973	50
20	7369	48	7369	48	0027	135.702	6267	135.698	6261	9973	40
30	7418	49	7418	49	0028	134.815	6267	134.811	6261	9972	30
40	7466	48	7466	48	0028	133.939	6267	133.936	6261	9972	20
50	7515	49	7515	49	0028	133.075	6267	133.072	6261	9972	10
26 0	0.007563	48	0.007563	48	1.000029	132.222	206267	132.219	206261	0.999971	**34** 0
10	7612	49	7612	49	0029	131.380	6267	131.376	6261	9971	50
20	7660	48	7660	48	0029	130.549	6267	130.545	6261	9971	40
30	7708	48	7709	49	0030	129.728	6267	129.724	6261	9970	30
40	7757	49	7757	48	0030	128.917	6267	128.913	6261	9970	20
50	7805	48	7806	49	0030	128.116	6267	128.112	6261	9970	10
27 0	0.007854	49	0.007854	48	1.000031	127.325	206267	127.321	206261	0.999969	**33** 0
10	7902	48	7903	49	0031	126.544	6267	126.540	6261	9969	50
20	7951	49	7951	48	0032	125.773	6267	125.769	6260	9968	40
30	7999	48	8000	49	0032	125.010	6267	125.006	6260	9968	30
40	8048	49	8048	48	0032	124.257	6267	124.253	6260	9968	20
50	8096	48	8097	49	0033	123.513	6267	123.509	6260	9967	10
28 0	0.008145	49	0.008145	48	1.000033	122.778	206267	122.774	206260	0.999967	**32** 0
10	8193	48	8194	49	0034	122.052	6267	122.047	6260	9966	50
20	8242	49	8242	48	0034	121.334	6267	121.329	6260	9966	40
30	8290	48	8291	49	0034	120.624	6267	120.620	6260	9966	30
40	8339	49	8339	48	0035	119.923	6267	119.919	6260	9965	20
50	8387	48	8387	48	0035	119.230	6267	119.225	6260	9965	10
29 0	0.008436	49	0.008436	49	1.000036	118.544	206267	118.540	206260	0.999964	**31** 0
10	8484	48	8484	48	0036	117.867	6267	117.863	6260	9964	50
20	8533	49	8533	49	0036	117.197	6267	117.193	6260	9964	40
30	8581	48	8581	48	0037	116.535	6267	116.531	6260	9963	30
40	8630	49	8630	49	0037	115.881	6267	115.876	6260	9963	20
50	8678	48	8678	48	0038	115.233	6267	115.229	6260	9962	10
30 0	0.008727	49	0.008727	49	1.000038	114.593	206267	114.589	206260	0.999962	**30** 0
	cos		cotg		cosec	sec		tang		sin	

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

89°

0°

	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
30′ 0″	0.008727		0.008727		1.000038	114.5930	206267″	114.5887	206260″	0.999962	**30′** 0″
10	8775	48	8775	48	0039	113.9599	6267	113.9555	6260	9961	50
20	8823	48	8824	49	0039	113.3338	6267	113.3294	6259	9961	40
30	8872	49	8872	48	0039	112.7145	6268	112.7101	6259	9961	30
40	8920	48	8921	49	0040	112.1019	6268	112.0975	6259	9960	20
50	8969	49	8969	48	0040	111.4960	6268	111.4915	6259	9960	10
31 0	0.009017	48	0.009018	49	1.000041	110.8966	206268	110.8921	206259	0.999959	**29** 0
10	9066	49	9066	48	0041	110.3035	6268	110.2990	6259	9959	50
20	9114	48	9115	49	0042	109.7168	6268	109.7123	6259	9958	40
30	9163	49	9163	48	0042	109.1363	6268	109.1318	6259	9958	30
40	9211	48	9212	49	0042	108.5620	6268	108.5574	6259	9958	20
50	9260	49	9260	48	0043	107.9936	6268	107.9890	6259	9957	10
32 0	0.009308	48	0.009309	49	1.000043	107.4311	206268	107.4265	206259	0.999957	**28** 0
10	9357	49	9357	48	0044	106.8745	6268	106.8698	6259	9956	50
20	9405	48	9406	49	0044	106.3236	6268	106.3189	6259	9956	40
30	9454	49	9454	48	0045	105.7784	6268	105.7737	6259	9955	30
40	9502	48	9503	49	0045	105.2387	6268	105.2340	6259	9955	20
50	9551	49	9551	48	0046	104.7045	6268	104.6998	6259	9954	10
33 0	0.009599	48	0.009600	49	1.000046	104.1757	206268	104.1709	206258	0.999954	**27** 0
10	9648	49	9648	48	0047	103.6523	6268	103.6474	6258	9953	50
20	9696	48	9697	49	0047	103.1340	6268	103.1292	6258	9953	40
30	9745	49	9745	48	0047	102.6209	6268	102.6161	6258	9953	30
40	9793	48	9794	49	0048	102.1129	6268	102.1080	6258	9952	20
50	9842	49	9842	48	0048	101.6099	6268	101.6050	6258	9952	10
34 0	0.009890	48	0.009891	49	1.000049	101.1118	206268	101.1069	206258	0.999951	**26** 0
10	9939	49	9939	48	0049	100.6186	6268	100.6137	6258	9951	50
20	0.009987	48	0.009987	48	0050	100.1302	6268	100.1252	6258	9950	40
30	0.010035	48	0.010036	49	0050	99.6465	6268	99.6415	6258	9950	30
40	0084	49	0084	48	0051	99.1675	6268	99.1624	6258	9949	20
50	0132	48	0133	49	0051	98.6930	6268	98.6879	6258	9949	10
35 0	0.010181	49	0.010181	48	1.000052	98.2230	206268	98.2179	206258	0.999948	**25** 0
10	0229	48	0230	49	0052	97.7575	6268	97.7524	6258	9948	50
20	0278	49	0278	48	0053	97.2964	6268	97.2913	6258	9947	40
30	0326	48	0327	49	0053	96.8397	6268	96.8345	6257	9947	30
40	0375	49	0375	48	0054	96.3872	6269	96.3820	6257	9946	20
50	0423	48	0424	49	0054	95.9389	6269	95.9336	6257	9946	10
36 0	0.010472	49	0.010472	48	1.000055	95.4947	206269	95.4895	206257	0.999945	**24** 0
10	0520	48	0521	49	0055	95.0547	6269	95.0494	6257	9945	50
20	0569	49	0569	48	0056	94.6186	6269	94.6134	6257	9944	40
30	0617	48	0618	49	0056	94.1866	6269	94.1813	6257	9944	30
40	0666	49	0666	48	0057	93.7585	6269	93.7532	6257	9943	20
50	0714	48	0715	49	0057	93.3343	6269	93.3289	6257	9943	10
37 0	0.010763	49	0.010763	48	1.000058	92.9139	206269	92.9085	206257	0.999942	**23** 0
10	0811	48	0812	49	0058	92.4972	6269	92.4918	6257	9942	50
20	0860	49	0860	48	0059	92.0843	6269	92.0789	6257	9941	40
30	0908	48	0909	49	0059	91.6751	6269	91.6696	6257	9941	30
40	0957	49	0957	48	0060	91.2694	6269	91.2640	6257	9940	20
50	1005	48	1006	49	0061	90.8674	6269	90.8619	6256	9939	10
38 0	0.011054	49	0.011054	48	1.000061	90.4689	206269	90.4633	206256	0.999939	**22** 0
10	1102	48	1103	49	0062	90.0738	6269	90.0683	6256	9938	50
20	1150	48	1151	48	0062	89.6822	6269	89.6766	6256	9938	40
30	1199	49	1200	49	0063	89.2940	6269	89.2884	6256	9937	30
40	1247	48	1248	48	0063	88.9091	6269	88.9035	6256	9937	20
50	1296	49	1297	49	0064	88.5276	6269	88.5219	6256	9936	10
39 0	0.011344	48	0.011345	48	1.000064	88.1492	206269	88.1436	206256	0.999936	**21** 0
10	1393	49	1394	49	0065	87.7742	6269	87.7685	6256	9935	50
20	1441	48	1442	48	0065	87.4022	6269	87.3965	6256	9935	40
30	1490	49	1491	49	0066	87.0335	6269	87.0277	6256	9934	30
40	1538	48	1539	48	0067	86.6678	6269	86.6620	6256	9933	20
50	1587	49	1588	49	0067	86.3052	6269	86.2994	6256	9933	10
40 0	0.011635	48	0.011636	48	1.000068	85.9456	206269	85.9398	206255	0.999932	**20** 0
	cos		cotg		cosec	sec		tang		sin	

48	
1	4.8
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9	43.2

49	
1	4.9
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4	19.6
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7	34.3
8	39.2
9	44.1

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	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
40′ 0″	0.011635		0.011636		1.000068	85.9456	206269″	85.9398	206255″	0.999932	**20′** 0″
10	1684	49	1685	49	0068	85.5890	6269	85.5832	6255	9932	50
20	1732	48	1733	48	0069	85.2353	6270	85.2295	6255	9931	40
30	1781	49	1782	49	0069	84.8846	6270	84.8787	6255	9931	30
40	1829	48	1830	48	0070	84.5367	6270	84.5308	6255	9930	20
50	1878	49	1878	48	0071	84.1917	6270	84.1858	6255	9929	10
41 0	0.011926	48	0.011927	49	1.000071	83.8495	206270	83.8435	206255	0.999929	**19** 0
10	1975	49	1975	48	0072	83.5100	6270	83.5040	6255	9928	50
20	2023	48	2024	49	0072	83.1733	6270	83.1673	6255	9928	40
30	2072	49	2072	48	0073	82.8393	6270	82.8332	6255	9927	30
40	2120	48	2121	49	0073	82.5079	6270	82.5019	6255	9927	20
50	2169	49	2169	48	0074	82.1792	6270	82.1732	6255	9926	10
42 0	0.012217	48	0.012218	49	1.000075	81.8531	206270	81.8470	206255	0.999925	**18** 0
10	2265	48	2266	48	0075	81.5296	6270	81.5235	6254	9925	50
20	2314	49	2315	49	0076	81.2087	6270	81.2025	6254	9924	40
30	2362	48	2363	48	0076	80.8902	6270	80.8840	6254	9924	30
40	2411	49	2412	49	0077	80.5743	6270	80.5681	6254	9923	20
50	2459	48	2460	48	0078	80.2608	6270	80.2545	6254	9922	10
43 0	0.012508	49	0.012509	49	1.000078	79.9497	206270	79.9434	206254	0.999922	**17** 0
10	2556	48	2557	48	0079	79.6410	6270	79.6347	6254	9921	50
20	2605	49	2606	49	0079	79.3347	6270	79.3284	6254	9921	40
30	2653	48	2654	48	0080	79.0308	6270	79.0244	6254	9920	30
40	2702	49	2703	49	0081	78.7291	6270	78.7228	6254	9919	20
50	2750	48	2751	48	0081	78.4298	6270	78.4234	6254	9919	10
44 0	0.012799	49	0.012800	49	1.000082	78.1327	206270	78.1263	206254	0.999918	**16** 0
10	2847	48	2848	48	0083	77.8379	6270	77.8315	6253	9917	50
20	2896	49	2897	49	0083	77.5453	6271	77.5389	6253	9917	40
30	2944	48	2945	48	0084	77.2549	6271	77.2484	6253	9916	30
40	2993	49	2994	49	0084	76.9666	6271	76.9601	6253	9916	20
50	3041	48	3042	48	0085	76.6805	6271	76.6740	6253	9915	10
45 0	0.013090	49	0.013091	49	1.000086	76.3966	206271	76.3900	206253	0.999914	**15** 0
10	3138	48	3139	48	0086	76.1147	6271	76.1081	6253	9914	50
20	3187	49	3188	49	0087	75.8348	6271	75.8283	6253	9913	40
30	3235	48	3236	48	0088	75.5571	6271	75.5505	6253	9912	30
40	3284	49	3285	49	0088	75.2813	6271	75.2747	6253	9912	20
50	3332	48	3333	48	0089	75.0076	6271	75.0009	6253	9911	10
46 0	0.013380	48	0.013382	49	1.000090	74.7359	206271	74.7292	206252	0.999910	**14** 0
10	3429	49	3430	48	0090	74.4661	6271	74.4594	6252	9910	50
20	3477	48	3479	49	0091	74.1982	6271	74.1915	6252	9909	40
30	3526	49	3527	48	0091	73.9323	6271	73.9255	6252	9909	30
40	3574	48	3576	49	0092	73.6683	6271	73.6615	6252	9908	20
50	3623	49	3624	48	0093	73.4061	6271	73.3993	6252	9907	10
47 0	0.013671	48	0.013673	49	1.000093	73.1458	206271	73.1390	206252	0.999907	**13** 0
10	3720	49	3721	48	0094	72.8874	6271	72.8805	6252	9906	50
20	3768	48	3770	49	0095	72.6307	6271	72.6239	6252	9905	40
30	3817	49	3818	48	0095	72.3759	6271	72.3690	6252	9905	30
40	3865	48	3867	49	0096	72.1229	6271	72.1159	6252	9904	20
50	3914	49	3915	48	0097	71.8716	6271	71.8646	6251	9903	10
48 0	0.013962	48	0.013964	49	1.000097	71.6221	206272	71.6151	206251	0.999903	**12** 0
10	4011	49	4012	48	0098	71.3742	6272	71.3672	6251	9902	50
20	4059	48	4061	49	0099	71.1281	6272	71.1211	6251	9901	40
30	4108	49	4109	48	0100	70.8837	6272	70.8767	6251	9900	30
40	4156	48	4158	49	0100	70.6410	6272	70.6339	6251	9900	20
50	4205	49	4206	48	0101	70.3999	6272	70.3928	6251	9899	10
49 0	0.014253	48	0.014254	48	1.000102	70.1605	206272	70.1533	206251	0.999898	**11** 0
10	4302	49	4303	49	0102	69.9227	6272	69.9155	6251	9898	50
20	4350	48	4351	48	0103	69.6864	6272	69.6793	6251	9897	40
30	4398	48	4400	49	0104	69.4518	6272	69.4446	6251	9896	30
40	4447	49	4448	48	0104	69.2188	6272	69.2116	6250	9896	20
50	4495	48	4497	49	0105	68.9873	6272	68.9801	6250	9895	10
50 0	0.014544	49	0.014545	48	1.000106	68.7574	206272	68.7501	206250	0.999894	**10** 0
	cos		cotg		cosec	sec		tang		sin	

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1	4.8
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	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
50′ 0″	0.014544		0.014545		1.000106	68.7574	206272″	68.7501	206250″	0.999894	**10′** 0″
10	4592	48	4594	49	0106	68.5289	6272	68.5216	6250	9894	50
20	4641	49	4642	48	0107	68.3020	6272	68.2947	6250	9893	40
30	4689	48	4691	49	0108	68.0766	6272	68.0693	6250	9892	30
40	4738	49	4739	48	0109	67.8527	6272	67.8454	6250	9891	20
50	4786	48	4788	49	0109	67.6303	6272	67.6229	6250	9891	10
51 0	0.014835	49	0.014836	48	1.000110	67.4093	206272	67.4019	206250	0.999890	**9** 0
10	4883	48	4885	49	0111	67.1897	6272	67.1823	6250	9889	50
20	4932	49	4933	48	0111	66.9716	6272	66.9641	6249	9889	40
30	4980	48	4982	49	0112	66.7549	6273	66.7474	6249	9888	30
40	5029	49	5030	48	0113	66.5395	6273	66.5320	6249	9887	20
50	5077	48	5079	49	0114	66.3256	6273	66.3181	6249	9886	10
52 0	0.015126	49	0.015127	48	1.000114	66.1130	206273	66.1055	206249	0.999886	**8** 0
10	5174	48	5176	49	0115	65.9018	6273	65.8942	6249	9885	50
20	5223	49	5224	48	0116	65.6920	6273	65.6844	6249	9884	40
30	5271	48	5273	49	0117	65.4834	6273	65.4758	6249	9883	30
40	5320	49	5321	48	0117	65.2762	6273	65.2686	6249	9883	20
50	5368	48	5370	49	0118	65.0703	6273	65.0626	6249	9882	10
53 0	0.015416	48	0.015418	48	1.000119	64.8657	206273	64.8580	206248	0.999881	**7** 0
10	5465	49	5467	49	0120	64.6624	6273	64.6547	6248	9880	50
20	5513	48	5515	48	0120	64.4603	6273	64.4526	6248	9880	40
30	5562	49	5564	49	0121	64.2595	6273	64.2518	6248	9879	30
40	5610	48	5612	48	0122	64.0600	6273	64.0522	6248	9878	20
50	5659	49	5661	49	0123	63.8617	6273	63.8539	6248	9877	10
54 0	0.015707	48	0.015709	48	1.000123	63.6646	206273	63.6567	206248	0.999877	**6** 0
10	5756	49	5758	49	0124	63.4687	6273	63.4608	6248	9876	50
20	5804	48	5806	48	0125	63.2740	6273	63.2661	6248	9875	40
30	5853	49	5855	49	0126	63.0806	6273	63.0726	6248	9874	30
40	5901	48	5903	48	0126	62.8883	6273	62.8803	6247	9874	20
50	5950	49	5952	49	0127	62.6971	6274	62.6892	6247	9873	10
55 0	0.015998	48	0.016000	48	1.000128	62.5072	206274	62.4992	206247	0.999872	**5** 0
10	6047	49	6049	49	0129	62.3183	6274	62.3103	6247	9871	50
20	6095	48	6097	48	0130	62.1306	6274	62.1226	6247	9870	40
30	6144	49	6146	49	0130	61.9441	6274	61.9360	6247	9870	30
40	6192	48	6194	48	0131	61.7586	6274	61.7505	6247	9869	20
50	6241	49	6243	49	0132	61.5743	6274	61.5662	6247	9868	10
56 0	0.016289	48	0.016291	48	1.000133	61.3911	206274	61.3829	206247	0.999867	**4** 0
10	6337	48	6340	49	0133	61.2089	6274	61.2007	6246	9867	50
20	6386	49	6388	48	0134	61.0278	6274	61.0196	6246	9866	40
30	6434	48	6437	49	0135	60.8478	6274	60.8396	6246	9865	30
40	6483	49	6485	48	0136	60.6689	6274	60.6606	6246	9864	20
50	6531	48	6534	49	0137	60.4910	6274	60.4827	6246	9863	10
57 0	0.016580	49	0.016582	48	1.000137	60.3141	206274	60.3058	206246	0.999863	**3** 0
10	6628	48	6631	49	0138	60.1383	6274	60.1300	6246	9862	50
20	6677	49	6679	48	0139	59.9635	6274	59.9551	6246	9861	40
30	6725	48	6728	49	0140	59.7897	6274	59.7813	6246	9860	30
40	6774	49	6776	48	0141	59.6169	6274	59.6085	6245	9859	20
50	6822	48	6825	49	0142	59.4451	6275	59.4367	6245	9858	10
58 0	0.016871	49	0.016873	48	1.000142	59.2743	206275	59.2659	206245	0.999858	**2** 0
10	6919	48	6922	49	0143	59.1045	6275	59.0960	6245	9857	50
20	6968	49	6970	48	0144	58.9356	6275	58.9271	6245	9856	40
30	7016	48	7019	49	0145	58.7677	6275	58.7592	6245	9855	30
40	7065	49	7067	48	0146	58.6008	6275	58.5923	6245	9854	20
50	7113	48	7116	49	0146	58.4348	6275	58.4263	6245	9854	10
59 0	0.017162	49	0.017164	48	1.000147	58.2698	206275	58.2612	206245	0.999853	**1** 0
10	7210	48	7213	49	0148	58.1056	6275	58.0970	6244	9852	50
20	7259	49	7261	48	0149	57.9424	6275	57.9338	6244	9851	40
30	7307	48	7310	49	0150	57.7801	6275	57.7715	6244	9850	30
40	7355	48	7358	48	0151	57.6188	6275	57.6101	6244	9849	20
50	7404	49	7407	49	0151	57.4583	6275	57.4496	6244	9849	10
60 0	0.017452	48	0.017455	48	1.000152	57.2987	206275	57.2900	206244	0.999848	**0** 0
	cos		cotg		cosec	sec		tang		sin	

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

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	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
0′ 0″	0.017452		0.017455		1.000152	57.2987	206275″	57.2900	206244″	0.999848	**60′** 0″
10	7501	49	7504	49	0153	57.1400	6275	57.1312	6244	9847	50
20	7549	48	7552	48	0154	56.9822	6275	56.9734	6244	9846	40
30	7598	49	7601	49	0155	56.8252	6275	56.8164	6244	9845	30
40	7646	48	7649	48	0156	56.6691	6276	56.6603	6243	9844	20
50	7695	49	7698	49	0157	56.5139	6276	56.5050	6243	9843	10
1 0	0.017743	48	0.017746	48	1.000157	56.3595	206276	56.3506	206243	0.999843	**59** 0
10	7792	49	7795	49	0158	56.2059	6276	56.1970	6243	9842	50
20	7840	48	7843	48	0159	56.0532	6276	56.0443	6243	9841	40
30	7889	49	7892	49	0160	55.9013	6276	55.8924	6243	9840	30
40	7937	48	7940	48	0161	55.7502	6276	55.7413	6243	9839	20
50	7986	49	7989	49	0162	55.6000	6276	55.5910	6243	9838	10
2 0	0.018034	48	0.018037	48	1.000163	55.4505	206276	55.4415	206242	0.999837	**58** 0
10	8083	49	8086	49	0164	55.3019	6276	55.2928	6242	9836	50
20	8131	48	8134	48	0164	55.1540	6276	55.1450	6242	9836	40
30	8180	49	8183	49	0165	55.0070	6276	54.9979	6242	9835	30
40	8228	48	8231	48	0166	54.8607	6276	54.8516	6242	9834	20
50	8276	48	8280	49	0167	54.7152	6276	54.7061	6242	9833	10
3 0	0.018325	49	0.018328	48	1.000168	54.5705	206276	54.5613	206242	0.999832	**57** 0
10	8373	48	8377	49	0169	54.4265	6276	54.4173	6242	9831	50
20	8422	49	8425	48	0170	54.2833	6276	54.2741	6241	9830	40
30	8470	48	8474	49	0171	54.1408	6277	54.1316	6241	9829	30
40	8519	49	8522	48	0172	53.9991	6277	53.9898	6241	9829	20
50	8567	48	8570	48	0172	53.8581	6277	53.8489	6241	9828	10
4 0	0.018616	49	0.018619	49	1.000173	53.7179	206277	53.7086	206241	0.999827	**56** 0
10	8664	48	8667	48	0174	53.5784	6277	53.5691	6241	9826	50
20	8713	49	8716	49	0175	53.4396	6277	53.4302	6241	9825	40
30	8761	48	8764	48	0176	53.3015	6277	53.2921	6241	9824	30
40	8810	49	8813	49	0177	53.1642	6277	53.1548	6240	9823	20
50	8858	48	8861	48	0178	53.0275	6277	53.0181	6240	9822	10
5 0	0.018907	49	0.018910	49	1.000179	52.8916	206277	52.8821	206240	0.999821	**55** 0
10	8955	48	8958	48	0180	52.7563	6277	52.7468	6240	9820	50
20	9004	49	9007	49	0181	52.6217	6277	52.6122	6240	9819	40
30	9052	48	9055	48	0182	52.4879	6277	52.4783	6240	9818	30
40	9100	48	9104	49	0182	52.3547	6277	52.3451	6240	9818	20
50	9149	49	9152	48	0183	52.2221	6277	52.2126	6240	9817	10
6 0	0.019197	48	0.019201	49	1.000184	52.0903	206277	52.0807	206239	0.999816	**54** 0
10	9246	49	9249	48	0185	51.9591	6278	51.9495	6239	9815	50
20	9294	48	9298	49	0186	51.8285	6278	51.8189	6239	9814	40
30	9343	49	9346	48	0187	51.6987	6278	51.6890	6239	9813	30
40	9391	48	9395	49	0188	51.5694	6278	51.5597	6239	9812	20
50	9440	49	9443	48	0189	51.4408	6278	51.4311	6239	9811	10
7 0	0.019488	48	0.019492	49	1.000190	51.3129	206278	51.3032	206239	0.999810	**53** 0
10	9537	49	9540	48	0191	51.1856	6278	51.1758	6239	9809	50
20	9585	48	9589	49	0192	51.0589	6278	51.0491	6238	9808	40
30	9634	49	9637	48	0193	50.9329	6278	50.9230	6238	9807	30
40	9682	48	9686	49	0194	50.8074	6278	50.7976	6238	9806	20
50	9731	49	9734	48	0195	50.6826	6278	50.6727	6238	9805	10
8 0	0.019779	48	0.019783	49	1.000196	50.5584	206278	50.5485	206238	0.999804	**52** 0
10	9828	49	9831	48	0197	50.4348	6278	50.4249	6238	9803	50
20	9876	48	9880	49	0198	50.3118	6278	50.3019	6238	9802	40
30	9925	49	9928	48	0199	50.1894	6278	50.1794	6238	9801	30
40	0.019973	48	0.019977	49	0200	50.0676	6279	50.0576	6237	9801	20
50	0.020021	48	0.020025	48	0200	49.9464	6279	49.9364	6237	9800	10
9 0	0.020070	49	0.020074	49	1.000201	49.8258	206279	49.8157	206237	0.999799	**51** 0
10	0118	48	0122	48	0202	49.7057	6279	49.6957	6237	9798	50
20	0167	49	0171	49	0203	49.5862	6279	49.5762	6237	9797	40
30	0215	48	0219	48	0204	49.4674	6279	49.4572	6237	9796	30
40	0264	49	0268	49	0205	49.3490	6279	49.3389	6237	9795	20
50	0312	48	0316	48	0206	49.2313	6279	49.2211	6236	9794	10
10 0	0.020361	49	0.020365	49	1.000207	49.1141	206279	49.1039	206236	0.999793	**50** 0
	cos		cotg		cosec	sec		tang		sin	

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

1°

	sin		tang		sec	cosec	$w'' \cdot$ cosec	cotg	$w'' \cdot$ cotg	cos	
10′ 0″	0.020361		0.020365		1.000207	49.1141	206279″	49.1039	206236″	0.999793	**50′** 0″
10	0409	48	0413	48	0208	48.9974	6279	48.9872	6236	9792	50
20	0458	49	0462	49	0209	48.8813	6279	48.8711	6236	9791	40
30	0506	48	0510	48	0210	48.7658	6279	48.7555	6236	9790	30
40	0555	49	0559	49	0211	48.6508	6279	48.6405	6236	9789	20
50	0603	48	0607	48	0212	48.5363	6279	48.5260	6236	9788	10
11 0	0.020652	49	0.020656	49	1.000213	48.4224	206279	48.4121	206235	0.999787	**49** 0
10	0700	48	0705	49	0214	48.3090	6280	48.2987	6235	9786	50
20	0749	49	0753	48	0215	48.1962	6280	48.1858	6235	9785	40
30	0797	48	0802	49	0216	48.0838	6280	48.0734	6235	9784	30
40	0845	48	0850	48	0217	47.9720	6280	47.9616	6235	9783	20
50	0894	49	0899	49	0218	47.8607	6280	47.8503	6235	9782	10
12 0	0.020942	48	0.020947	48	1.000219	47.7500	206280	47.7395	206235	0.999781	**48** 0
10	0991	49	0996	49	0220	47.6397	6280	47.6292	6235	9780	50
20	1039	48	1044	48	0221	47.5300	6280	47.5194	6234	9779	40
30	1088	49	1093	49	0222	47.4207	6280	47.4102	6234	9778	30
40	1136	48	1141	48	0223	47.3120	6280	47.3014	6234	9777	20
50	1185	49	1190	49	0224	47.2037	6280	47.1931	6234	9776	10
13 0	0.021233	48	0.021238	48	1.000226	47.0960	206280	47.0853	206234	0.999775	**47** 0
10	1282	49	1287	49	0227	46.9887	6280	46.9781	6234	9774	50
20	1330	48	1335	48	0228	46.8819	6280	46.8713	6234	9772	40
30	1379	49	1384	49	0229	46.7756	6281	46.7649	6233	9771	30
40	1427	48	1432	48	0230	46.6698	6281	46.6591	6233	9770	20
50	1476	49	1481	49	0231	46.5645	6281	46.5537	6233	9769	10
14 0	0.021524	48	0.021529	48	1.000232	46.4596	206281	46.4489	206233	0.999768	**46** 0
10	1573	49	1578	49	0233	46.3552	6281	46.3445	6233	9767	50
20	1621	48	1626	48	0234	46.2513	6281	46.2405	6233	9766	40
30	1669	48	1675	49	0235	46.1479	6281	46.1370	6233	9765	30
40	1718	49	1723	48	0236	46.0449	6281	46.0340	6232	9764	20
50	1766	48	1772	49	0237	45.9423	6281	45.9315	6232	9763	10
15 0	0.021815	49	0.021820	48	1.000238	45.8403	206281	45.8294	206232	0.999762	**45** 0
10	1863	48	1869	49	0239	45.7386	6281	45.7277	6232	9761	50
20	1912	49	1917	48	0240	45.6375	6281	45.6265	6232	9760	40
30	1960	48	1966	49	0241	45.5367	6281	45.5257	6232	9759	30
40	2009	49	2014	48	0242	45.4364	6281	45.4254	6231	9758	20
50	2057	48	2063	49	0243	45.3366	6282	45.3256	6231	9757	10
16 0	0.022106	49	0.022111	48	1.000244	45.2372	206282	45.2261	206231	0.999756	**44** 0
10	2154	48	2160	49	0245	45.1382	6282	45.1271	6231	9755	50
20	2203	49	2208	48	0247	45.0397	6282	45.0286	6231	9753	40
30	2251	48	2257	49	0248	44.9416	6282	44.9304	6231	9752	30
40	2300	49	2305	48	0249	44.8439	6282	44.8327	6231	9751	20
50	2348	48	2354	49	0250	44.7466	6282	44.7355	6230	9750	10
17 0	0.022397	49	0.022402	48	1.000251	44.6498	206282	44.6386	206230	0.999749	**43** 0
10	2445	48	2451	49	0252	44.5534	6282	44.5422	6230	9748	50
20	2493	48	2499	48	0253	44.4574	6282	44.4461	6230	9747	40
30	2542	49	2548	49	0254	44.3618	6282	44.3505	6230	9746	30
40	2590	48	2596	48	0255	44.2666	6282	44.2553	6230	9745	20
50	2639	49	2645	49	0256	44.1718	6282	44.1605	6230	9744	10
18 0	0.022687	48	0.022693	48	1.000257	44.0775	206283	44.0661	206229	0.999743	**42** 0
10	2736	49	2742	49	0259	43.9835	6283	43.9721	6229	9742	50
20	2784	48	2790	48	0260	43.8899	6283	43.8785	6229	9740	40
30	2833	49	2839	49	0261	43.7968	6283	43.7853	6229	9739	30
40	2881	48	2887	48	0262	43.7040	6283	43.6925	6229	9738	20
50	2930	49	2936	49	0263	43.6116	6283	43.6001	6229	9737	10
19 0	0.022978	48	0.022984	48	1.000264	43.5196	206283	43.5081	206228	0.999736	**41** 0
10	3027	49	3033	49	0265	43.4280	6283	43.4165	6228	9735	50
20	3075	48	3081	48	0266	43.3368	6283	43.3252	6228	9734	40
30	3124	49	3130	49	0267	43.2460	6283	43.2344	6228	9733	30
40	3172	48	3178	48	0269	43.1555	6283	43.1439	6228	9731	20
50	3220	48	3227	49	0270	43.0654	6283	43.0538	6228	9730	10
20 0	0.023269	49	0.023275	48	1.000271	42.9757	206283	42.9641	206228	0.999729	**40** 0
	cos		cotg		cosec	sec		tang		sin	

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

1°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.023269		0.023275		1.000271		42.9757		42.9641		0.999729		**40′** 0″
10	3317	48	3324	49	0272	1	8864	893	8747	894	9728	1	50
20	3366	49	3372	48	0273	1	7974	890	7857	890	9727	1	40
30	3414	48	3421	49	0274	1	7088	886	6971	886	9726	1	30
40	3463	49	3469	48	0275	1	6206	882	6089	882	9725	1	20
50	3511	48	3518	49	0277	2	5327	879	5210	879	9724	1	10
21 0	0.023560	49	0.023566	48	1.000278	1	42.4452	875	42.4335	875	0.999722	2	**39** 0
10	3608	48	3615	49	0279	1	3581	871	3463	872	9721	1	50
20	3657	49	3663	48	0280	1	2713	868	2595	868	9720	1	40
30	3705	48	3712	49	0281	1	1849	864	1730	865	9719	1	30
40	3754	49	3760	48	0282	1	0988	861	0869	861	9718	1	20
50	3802	48	3809	49	0283	1	42.0131	857	42.0012	857	9717	1	10
22 0	0.023851	49	0.023857	48	1.000285	2	41.9277	854	41.9158	854	0.999716	1	**38** 0
10	3899	48	3906	49	0286	1	8427	850	8307	851	9714	2	50
20	3948	49	3954	48	0287	1	7580	847	7460	847	9713	1	40
30	3996	48	4003	49	0288	1	6737	843	6617	843	9712	1	30
40	4044	48	4051	48	0289	1	5897	840	5776	841	9711	1	20
50	4093	49	4100	49	0290	1	5060	837	4939	837	9710	1	10
23 0	0.024141	48	0.024148	48	1.000292	2	41.4227	833	41.4106	833	0.999709	1	**37** 0
10	4190	49	4197	49	0293	1	3397	830	3276	830	9707	2	50
20	4238	48	4245	48	0294	1	2570	827	2449	827	9706	1	40
30	4287	49	4294	49	0295	1	1747	823	1625	824	9705	1	30
40	4335	48	4342	48	0296	1	0927	820	41.0805	820	9704	1	20
50	4384	49	4391	49	0297	1	41.0110	817	40.9988	817	9703	1	10
24 0	0.024432	48	0.024439	48	1.000299	2	40.9296	814	40.9174	814	0.999701	2	**36** 0
10	4481	49	4488	49	0300	1	8486	810	8364	810	9700	1	50
20	4529	48	4536	48	0301	1	7679	807	7556	808	9699	1	40
30	4578	49	4585	49	0302	1	6875	804	6752	804	9698	1	30
40	4626	48	4634	49	0303	1	6074	801	5951	801	9697	1	20
50	4675	49	4682	48	0305	2	5277	797	5153	798	9696	1	10
25 0	0.024723	48	0.024731	49	1.000306	1	40.4482	795	40.4358	795	0.999694	2	**35** 0
10	4771	48	4779	48	0307	1	3691	791	3567	791	9693	1	50
20	4820	49	4828	49	0308	1	2902	789	2778	789	9692	1	40
30	4868	48	4876	48	0309	1	2117	785	1993	785	9691	1	30
40	4917	49	4925	49	0311	2	1335	782	1210	783	9690	1	20
50	4965	48	4973	48	0312	1	40.0556	779	40.0431	779	9688	2	10
26 0	0.025014	49	0.025022	49	1.000313	1	39.9780	776	39.9655	776	0.999687	1	**34** 0
10	5062	48	5070	48	0314	1	9007	773	8881	774	9686	1	50
20	5111	49	5119	49	0315	1	8236	771	8111	770	9685	1	40
30	5159	48	5167	48	0317	2	7469	767	7343	768	9683	2	30
40	5208	49	5216	49	0318	1	6705	764	6579	764	9682	1	20
50	5256	48	5264	48	0319	1	5944	761	5818	761	9681	1	10
27 0	0.025305	49	0.025313	49	1.000320	1	39.5185	759	39.5059	759	0.999680	1	**33** 0
10	5353	48	5361	48	0322	2	4430	755	4303	756	9679	1	50
20	5402	49	5410	49	0323	1	3677	753	3550	753	9677	2	40
30	5450	48	5458	48	0324	1	2928	749	2800	750	9676	1	30
40	5498	48	5507	49	0325	1	2181	747	2053	747	9675	1	20
50	5547	49	5555	48	0326	1	1437	744	1309	744	9674	1	10
28 0	0.025595	48	0.025604	49	1.000328	2	39.0696	741	39.0568	741	0.999672	2	**32** 0
10	5644	49	5652	48	0329	1	38.9957	739	38.9829	739	9671	1	50
20	5692	48	5701	49	0330	1	9222	735	9093	736	9670	1	40
30	5741	49	5749	48	0331	1	8489	733	8360	733	9669	1	30
40	5789	48	5798	49	0333	2	7759	730	7630	730	9667	2	20
50	5838	49	5846	48	0334	1	7031	728	6902	728	9666	1	10
29 0	0.025886	48	0.025895	49	1.000335	1	38.6307	724	38.6177	725	0.999665	1	**31** 0
10	5935	49	5943	48	0336	1	5585	722	5455	722	9664	1	50
20	5983	48	5992	49	0338	2	4866	719	4736	719	9662	2	40
30	6032	49	6040	48	0339	1	4149	717	4019	717	9661	1	30
40	6080	48	6089	49	0340	1	3435	714	3305	714	9660	1	20
50	6128	48	6137	48	0342	2	2724	711	2593	712	9659	1	10
30 0	0.026177	49	0.026186	49	1.000343	1	38.2016	708	38.1885	708	0.999657	2	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

570

1	57.0
2	114.0
3	171.0
4	228.0
5	285.0
6	342.0
7	399.0
8	456.0
9	513.0

610

1	61.0
2	122.0
3	183.0
4	244.0
5	305.0
6	366.0
7	427.0
8	488.0
9	549.0

650

1	65.0
2	130.0
3	195.0
4	260.0
5	325.0
6	390.0
7	455.0
8	520.0
9	585.0

700

1	70.0
2	140.0
3	210.0
4	280.0
5	350.0
6	420.0
7	490.0
8	560.0
9	630.0

740

1	74.0
2	148.0
3	222.0
4	296.0
5	370.0
6	444.0
7	518.0
8	592.0
9	666.0

800

1	80.0
2	160.0
3	240.0
4	320.0
5	400.0
6	480.0
7	560.0
8	640.0
9	720.0

860

1	86.0
2	172.0
3	258.0
4	344.0
5	430.0
6	516.0
7	602.0
8	688.0
9	774.0

1°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.026177		0.026186		1.000343		38.2016		38.1885		0.999657		**30′** 0″
10	6225	48	6234	48	0344	1	1310	706	1178	707	9656	1	50
20	6274	49	6283	49	0345	1	38.0606	704	38.0475	703	9655	1	40
30	6322	48	6331	48	0347	2	37.9905	701	37.9774	701	9654	1	30
40	6371	49	6380	49	0348	1	9207	698	9075	699	9652	2	20
50	6419	48	6428	48	0349	1	8512	695	8379	696	9651	1	10
31 0	0.026468	49	0.026477	49	1.000350	1	37.7818	694	37.7686	693	0.999650	1	**29** 0
10	6516	48	6526	49	0352	2	7128	690	6995	691	9648	2	50
20	6565	49	6574	48	0353	1	6440	688	6307	688	9647	1	40
30	6613	48	6623	49	0354	1	5754	686	5621	686	9646	1	30
40	6662	49	6671	48	0356	2	5071	683	4938	683	9645	1	20
50	6710	48	6720	49	0357	1	4391	680	4257	681	9643	2	10
32 0	0.026759	49	0.026768	48	1.000358	1	37.3713	678	37.3579	678	0.999642	1	**28** 0
10	6807	48	6817	49	0360	2	3037	676	2903	676	9641	1	50
20	6855	48	6865	48	0361	1	2364	673	2230	673	9639	2	40
30	6904	49	6914	49	0362	1	1693	671	1559	671	9638	1	30
40	6952	48	6962	48	0363	1	1025	668	0890	669	9637	1	20
50	7001	49	7011	49	0365	2	37.0359	666	37.0224	666	9635	2	10
33 0	0.027049	48	0.027059	48	1.000366	1	36.9695	664	36.9560	664	0.999634	1	**27** 0
10	7098	49	7108	49	0367	1	9034	661	8899	661	9633	1	50
20	7146	48	7156	48	0369	2	8375	659	8240	659	9631	2	40
30	7195	49	7205	49	0370	1	7719	656	7583	657	9630	1	30
40	7243	48	7253	48	0371	1	7065	654	6928	655	9629	1	20
50	7292	49	7302	49	0373	2	6413	652	6276	652	9628	1	10
34 0	0.027340	48	0.027350	48	1.000374	1	36.5763	650	36.5627	649	0.999626	2	**26** 0
10	7389	49	7399	49	0375	1	5116	647	4979	648	9625	1	50
20	7437	48	7447	48	0377	2	4471	645	4334	645	9624	1	40
30	7485	48	7496	49	0378	1	3829	642	3691	643	9622	2	30
40	7534	49	7544	48	0379	1	3188	641	3050	641	9621	1	20
50	7582	48	7593	49	0381	2	2550	638	2412	638	9620	1	10
35 0	0.027631	49	0.027641	48	1.000382	1	36.1914	636	36.1776	636	0.999618	2	**25** 0
10	7679	48	7690	49	0383	1	1280	634	1142	634	9617	1	50
20	7728	49	7738	48	0385	2	0649	631	36.0510	632	9616	1	40
30	7776	48	7787	49	0386	1	36.0020	629	35.9881	629	9614	2	30
40	7825	49	7835	48	0387	1	35.9393	627	9254	627	9613	1	20
50	7873	48	7884	49	0389	2	8768	625	8628	626	9611	2	10
36 0	0.027922	49	0.027933	49	1.000390	1	35.8145	623	35.8006	622	0.999610	1	**24** 0
10	7970	48	7981	48	0391	1	7525	620	7385	621	9609	1	50
20	8019	49	8030	49	0393	2	6906	619	6766	619	9607	2	40
30	8067	48	8078	48	0394	1	6290	616	6150	616	9606	1	30
40	8115	48	8127	49	0395	1	5676	614	5535	615	9605	1	20
50	8164	49	8175	48	0397	2	5064	612	4923	612	9603	2	10
37 0	0.028212	48	0.028224	49	1.000398	1	35.4454	610	35.4313	610	0.999602	1	**23** 0
10	8261	49	8272	48	0400	2	3846	608	3705	608	9601	1	50
20	8309	48	8321	49	0401	1	3240	606	3099	606	9599	2	40
30	8358	49	8369	48	0402	1	2637	603	2495	604	9598	1	30
40	8406	48	8418	49	0404	2	2035	602	1893	602	9596	2	20
50	8455	49	8466	48	0405	1	1436	599	1293	600	9595	1	10
38 0	0.028503	48	0.028515	49	1.000406	1	35.0838	598	35.0695	598	0.999594	1	**22** 0
10	8552	49	8563	48	0408	2	35.0243	595	35.0100	595	9592	2	50
20	8600	48	8612	49	0409	1	34.9649	594	34.9506	594	9591	1	40
30	8649	49	8660	48	0411	2	9058	591	8914	592	9590	1	30
40	8697	48	8709	49	0412	1	8468	590	8325	589	9588	2	20
50	8745	48	8757	48	0413	1	7881	587	7737	588	9587	1	10
39 0	0.028794	49	0.028806	49	1.000415	2	34.7295	586	34.7151	586	0.999585	2	**21** 0
10	8842	48	8854	48	0416	1	6712	583	6567	584	9584	1	50
20	8891	49	8903	49	0418	2	6130	582	5986	581	9583	1	40
30	8939	48	8951	48	0419	1	5550	580	5406	580	9581	2	30
40	8988	49	9000	49	0420	1	4973	577	4828	578	9580	1	20
50	9036	48	9049	49	0422	2	4397	576	4252	576	9578	2	10
40 0	0.029085	49	0.029097	48	1.000423	1	34.3823	574	34.3678	574	0.999577	1	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

590	
1	59.0
2	118.0
3	177.0
4	236.0
5	295.0
6	354.0
7	413.0
8	472.0
9	531.0

630	
1	63.0
2	126.0
3	189.0
4	252.0
5	315.0
6	378.0
7	441.0
8	504.0
9	567.0

670	
1	67.0
2	134.0
3	201.0
4	268.0
5	335.0
6	402.0
7	469.0
8	536.0
9	603.0

720	
1	72.0
2	144.0
3	216.0
4	288.0
5	360.0
6	432.0
7	504.0
8	576.0
9	648.0

770	
1	77.0
2	154.0
3	231.0
4	308.0
5	385.0
6	462.0
7	539.0
8	616.0
9	693.0

830	
1	83.0
2	166.0
3	249.0
4	332.0
5	415.0
6	498.0
7	581.0
8	664.0
9	747.0

890	
1	89.0
2	178.0
3	267.0
4	356.0
5	445.0
6	534.0
7	623.0
8	712.0
9	801.0

88°

1°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.029085		0.029097		1.000423		34.3823		34.3678		0.999577		**20′** 0″
10	9133	48	9146	49	0425	2	3251	572	3106	572	9576	1	50
20	9182	49	9194	48	0426	1	2681	570	2535	571	9574	2	40
30	9230	48	9243	49	0427	1	2113	568	1967	568	9573	1	30
40	9279	49	9291	48	0429	2	1547	566	1400	567	9571	2	20
50	9327	48	9340	49	0430	1	0982	565	0836	564	9570	1	10
41 0	0.029375	48	0.029388	48	1.000432	2	34.0420	562	34.0273	563	0.999568	2	**19** 0
10	9424	49	9437	49	0433	1	33.9859	561	33.9712	561	9567	1	50
20	9472	48	9485	48	0435	2	9300	559	9153	559	9566	1	40
30	9521	49	9534	49	0436	1	8743	557	8596	557	9564	2	30
40	9569	48	9582	48	0437	1	8188	555	8040	556	9563	1	20
50	9618	49	9631	49	0439	2	7635	553	7487	553	9561	2	10
42 0	0.029666	48	0.029679	48	1.000440	1	33.7083	552	33.6935	552	0.999560	1	**18** 0
10	9715	49	9728	49	0442	2	6534	549	6385	550	9558	2	50
20	9763	48	9776	48	0443	1	5986	548	5837	548	9557	1	40
30	9812	49	9825	49	0445	2	5440	546	5291	546	9556	1	30
40	9860	48	9873	48	0446	1	4895	545	4746	545	9554	2	20
50	9909	49	9922	49	0448	2	4353	542	4203	543	9553	1	10
43 0	0.029957	48	0.029970	48	1.000449	1	33.3812	541	33.3662	541	0.999551	2	**17** 0
10	0.030005	48	0.030019	49	0450	1	3273	539	3123	539	9550	1	50
20	0054	49	0068	49	0452	2	2735	538	2585	538	9548	2	40
30	0102	48	0116	48	0453	1	2200	535	2049	536	9547	1	30
40	0151	49	0165	49	0455	2	1666	534	1515	534	9545	2	20
50	0199	48	0213	48	0456	1	1134	532	0982	533	9544	1	10
44 0	0.030248	49	0.030262	49	1.000458	2	33.0603	531	33.0452	530	0.999542	2	**16** 0
10	0296	48	0310	48	0459	1	33.0074	529	32.9923	529	9541	1	50
20	0345	49	0359	49	0461	2	32.9547	527	9395	528	9539	2	40
30	0393	48	0407	48	0462	1	9022	525	8870	525	9538	1	30
40	0442	49	0456	49	0464	2	8498	524	8346	524	9537	1	20
50	0490	48	0504	48	0465	1	7976	522	7823	523	9535	2	10
45 0	0.030539	49	0.030553	49	1.000467	2	32.7455	521	32.7303	520	0.999534	1	**15** 0
10	0587	48	0601	48	0468	1	6937	518	6784	519	9532	2	50
20	0635	48	0650	49	0470	2	6419	518	6266	518	9531	1	40
30	0684	49	0698	48	0471	1	5904	515	5750	516	9529	2	30
40	0732	48	0747	49	0473	2	5390	514	5236	514	9528	1	20
50	0781	49	0795	48	0474	1	4878	512	4724	512	9526	2	10
46 0	0.030829	48	0.030844	49	1.000476	2	32.4367	511	32.4213	511	0.999525	1	**14** 0
10	0878	49	0892	48	0477	1	3858	509	3704	509	9523	2	50
20	0926	48	0941	49	0479	2	3351	507	3196	508	9522	1	40
30	0975	49	0990	49	0480	1	2845	506	2690	506	9520	2	30
40	1023	48	1038	48	0482	2	2340	505	2185	505	9519	1	20
50	1072	49	1087	49	0483	1	1838	502	1682	503	9517	2	10
47 0	0.031120	48	0.031135	48	1.000485	2	32.1337	501	32.1181	501	0.999516	1	**13** 0
10	1168	48	1184	49	0486	1	0837	500	0681	500	9514	2	50
20	1217	49	1232	48	0488	2	32.0339	498	32.0183	498	9513	1	40
30	1265	48	1281	49	0489	1	31.9843	496	31.9686	497	9511	2	30
40	1314	49	1329	48	0491	2	9348	495	9191	495	9510	1	20
50	1362	48	1378	49	0492	1	8854	494	8697	494	9508	2	10
48 0	0.031411	49	0.031426	48	1.000494	2	31.8362	492	31.8205	492	0.999507	1	**12** 0
10	1459	48	1475	49	0495	1	7872	490	7715	490	9505	2	50
20	1508	49	1523	48	0497	2	7383	489	7225	490	9504	1	40
30	1556	48	1572	49	0498	1	6896	487	6738	487	9502	2	30
40	1605	49	1620	48	0500	2	6410	486	6252	486	9500	2	20
50	1653	48	1669	49	0501	1	5925	485	5767	485	9499	1	10
49 0	0.031702	49	0.031717	48	1.000503	2	31.5442	483	31.5284	483	0.999497	2	**11** 0
10	1750	48	1766	49	0504	1	4961	481	4802	482	9496	1	50
20	1798	48	1815	49	0506	2	4481	480	4322	480	9494	2	40
30	1847	49	1863	48	0507	1	4003	478	3843	479	9493	1	30
40	1895	48	1912	49	0509	2	3526	477	3366	477	9491	2	20
50	1944	49	1960	48	0511	2	3050	476	2890	476	9490	1	10
50 0	0.031992	48	0.032009	49	1.000512	1	31.2576	474	31.2416	474	0.999488	2	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

390

1	39.0
2	78.0
3	117.0
4	156.0
5	195.0
6	234.0
7	273.0
8	312.0
9	351.0

410

1	41.0
2	82.0
3	123.0
4	164.0
5	205.0
6	246.0
7	287.0
8	328.0
9	369.0

430

1	43.0
2	86.0
3	129.0
4	172.0
5	215.0
6	258.0
7	301.0
8	344.0
9	387.0

450

1	45.0
2	90.0
3	135.0
4	180.0
5	225.0
6	270.0
7	315.0
8	360.0
9	405.0

480

1	48.0
2	96.0
3	144.0
4	192.0
5	240.0
6	288.0
7	336.0
8	384.0
9	432.0

510

1	51.0
2	102.0
3	153.0
4	204.0
5	255.0
6	306.0
7	357.0
8	408.0
9	459.0

550

1	55.0
2	110.0
3	165.0
4	220.0
5	275.0
6	330.0
7	385.0
8	440.0
9	495.0

1°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.031992		0.032009		1.000512		31.2576		31.2416		0.999488		**10′** 0″
10	2041	49	2057	48	0514	2	2103	473	1943	473	9487	1	50
20	2089	48	2106	49	0515	1	1632	471	1471	472	9485	2	40
30	2138	49	2154	48	0517	2	1162	470	1001	470	9483	2	30
40	2186	48	2203	49	0518	1	0693	469	0532	469	9482	1	20
50	2235	49	2251	48	0520	2	31.0226	467	31.0065	467	9480	2	10
51 0	0.032283	48	0.032300	49	1.000522	2	30.9761	465	30.9599	466	0.999479	1	**9** 0
10	2331	48	2348	48	0523	1	9296	465	9135	464	9477	2	50
20	2380	49	2397	49	0525	2	8834	462	8672	463	9476	1	40
30	2428	48	2445	48	0526	1	8372	462	8210	462	9474	2	30
40	2477	49	2494	49	0528	2	7912	460	7750	460	9472	2	20
50	2525	48	2542	48	0529	1	7453	459	7291	459	9471	1	10
52 0	0.032574	49	0.032591	49	1.000531	2	30.6996	457	30.6833	458	0.999469	2	**8** 0
10	2622	48	2640	49	0533	2	6540	456	6377	456	9468	1	50
20	2671	49	2688	48	0534	1	6085	455	5922	455	9466	2	40
30	2719	48	2737	49	0536	2	5632	453	5468	454	9465	1	30
40	2768	49	2785	48	0537	1	5180	452	5016	452	9463	2	20
50	2816	48	2834	49	0539	2	4729	451	4565	451	9461	2	10
53 0	0.032864	48	0.032882	48	1.000540	1	30.4280	449	30.4116	449	0.999460	1	**7** 0
10	2913	49	2931	49	0542	2	3832	448	3668	448	9458	2	50
20	2961	48	2979	48	0544	2	3386	446	3221	447	9457	1	40
30	3010	49	3028	49	0545	1	2940	446	2775	446	9455	2	30
40	3058	48	3076	48	0547	2	2496	444	2331	444	9453	2	20
50	3107	49	3125	49	0548	1	2053	443	1888	443	9452	1	10
54 0	0.033155	48	0.033173	48	1.000550	2	30.1612	441	30.1446	442	0.999450	2	**6** 0
10	3204	49	3222	49	0552	2	1172	440	1006	440	9449	1	50
20	3252	48	3270	48	0553	1	0733	439	0567	439	9447	2	40
30	3301	49	3319	49	0555	2	30.0295	438	30.0129	438	9445	2	30
40	3349	48	3368	49	0557	2	29.9859	436	29.9692	437	9444	1	20
50	3397	48	3416	48	0558	1	9424	435	9257	435	9442	2	10
55 0	0.033446	49	0.033465	49	1.000560	2	29.8990	434	29.8823	434	0.999441	1	**5** 0
10	3494	48	3513	48	0561	1	8558	432	8390	433	9439	2	50
20	3543	49	3562	49	0563	2	8126	432	7959	431	9437	2	40
30	3591	48	3610	48	0565	2	7696	430	7528	431	9436	1	30
40	3640	49	3659	49	0566	1	7268	428	7099	429	9434	2	20
50	3688	48	3707	48	0568	2	6840	428	6672	427	9432	2	10
56 0	0.033737	49	0.033756	49	1.000570	2	29.6414	426	29.6245	427	0.999431	1	**4** 0
10	3785	48	3804	48	0571	1	5989	425	5820	425	9429	2	50
20	3834	49	3853	49	0573	2	5565	424	5396	424	9427	2	40
30	3882	48	3901	48	0574	1	5142	423	4973	423	9426	1	30
40	3930	48	3950	49	0576	2	4721	421	4551	422	9424	2	20
50	3979	49	3999	49	0578	2	4300	421	4130	421	9423	1	10
57 0	0.034027	48	0.034047	48	1.000579	1	29.3881	419	29.3711	419	0.999421	2	**3** 0
10	4076	49	4096	49	0581	2	3463	418	3293	418	9419	2	50
20	4124	48	4144	48	0583	2	3047	416	2876	417	9418	1	40
30	4173	49	4193	49	0584	1	2631	416	2460	416	9416	2	30
40	4221	48	4241	48	0586	2	2217	414	2046	414	9414	2	20
50	4270	49	4290	49	0588	2	1804	413	1632	414	9413	1	10
58 0	0.034318	48	0.034338	48	1.000589	1	29.1392	412	29.1220	412	0.999411	2	**2** 0
10	4367	49	4387	49	0591	2	0981	411	0809	411	9409	2	50
20	4415	48	4435	48	0593	2	0571	410	29.0399	410	9408	1	40
30	4463	48	4484	49	0594	1	29.0163	408	28.9990	409	9406	2	30
40	4512	49	4532	48	0596	2	28.9755	408	9583	407	9404	2	20
50	4560	48	4581	49	0598	2	9349	406	9176	407	9403	1	10
59 0	0.034609	49	0.034630	49	1.000599	1	28.8944	405	28.8771	405	0.999401	2	**1** 0
10	4657	48	4678	48	0601	2	8540	404	8367	404	9399	2	50
20	4706	49	4727	49	0603	2	8137	403	7964	403	9398	1	40
30	4754	48	4775	48	0604	1	7735	402	7562	402	9396	2	30
40	4803	49	4824	49	0606	2	7335	400	7161	401	9394	2	20
50	4851	48	4872	48	0608	2	6935	400	6761	400	9393	1	10
60 0	0.034899	48	0.034921	49	1.000610	2	28.6537	398	28.6363	398	0.999391	2	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

400	
1	40.0
2	80.0
3	120.0
4	160.0
5	200.0
6	240.0
7	280.0
8	320.0
9	360.0

420	
1	42.0
2	84.0
3	126.0
4	168.0
5	210.0
6	252.0
7	294.0
8	336.0
9	378.0

440	
1	44.0
2	88.0
3	132.0
4	176.0
5	220.0
6	264.0
7	308.0
8	352.0
9	396.0

460	
1	46.0
2	92.0
3	138.0
4	184.0
5	230.0
6	276.0
7	322.0
8	368.0
9	414.0

500	
1	50.0
2	100.0
3	150.0
4	200.0
5	250.0
6	300.0
7	350.0
8	400.0
9	450.0

530	
1	53.0
2	106.0
3	159.0
4	212.0
5	265.0
6	318.0
7	371.0
8	424.0
9	477.0

570	
1	57.0
2	114.0
3	171.0
4	228.0
5	285.0
6	342.0
7	399.0
8	456.0
9	513.0

2°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.034899		0.034921		1.000610		28.6537		28.6363		0.999391		**60′** 0″
10	4948	49	4969	48	0611	1	6140	397	5965	398	9389	2	50
20	4996	48	5018	49	0613	2	5744	396	5569	396	9387	2	40
30	5045	49	5066	48	0615	2	5349	395	5173	396	9386	1	30
40	5093	48	5115	49	0616	1	4955	394	4779	394	9384	2	20
50	5142	49	5163	48	0618	2	4562	393	4386	393	9382	2	10
1 0	0.035190	48	0.035212	49	1.000620	2	28.4170	392	28.3994	392	0.999381	1	**59** 0
10	5239	49	5261	49	0621	1	3779	391	3603	391	9379	2	50
20	5287	48	5309	48	0623	2	3390	389	3213	390	9377	2	40
30	5336	49	5358	49	0625	2	3001	389	2824	389	9376	1	30
40	5384	48	5406	48	0627	2	2614	387	2437	387	9374	2	20
50	5432	48	5455	49	0628	1	2227	387	2050	387	9372	2	10
2 0	0.035481	49	0.035503	48	1.000630	2	28.1842	385	28.1664	386	0.999370	2	**58** 0
10	5529	48	5552	49	0632	2	1457	385	1280	384	9369	1	50
20	5578	49	5600	48	0633	1	1074	383	0896	384	9367	2	40
30	5626	48	5649	49	0635	2	0692	382	0514	382	9365	2	30
40	5675	49	5697	48	0637	2	28.0311	381	28.0132	382	9363	2	20
50	5723	48	5746	49	0639	2	27.9930	381	27.9752	380	9362	1	10
3 0	0.035772	49	0.035795	49	1.000640	1	27.9551	379	27.9372	380	0.999360	2	**57** 0
10	5820	48	5843	48	0642	2	9173	378	8994	378	9358	2	50
20	5869	49	5892	49	0644	2	8796	377	8617	377	9357	1	40
30	5917	48	5940	48	0646	2	8420	376	8240	377	9355	2	30
40	5965	48	5989	49	0647	1	8045	375	7865	375	9353	2	20
50	6014	49	6037	48	0649	2	7671	374	7491	374	9351	2	10
4 0	0.036062	48	0.036086	49	1.000651	2	27.7298	373	27.7117	374	0.999350	1	**56** 0
10	6111	49	6134	48	0653	2	6926	372	6745	372	9348	2	50
20	6159	48	6183	49	0654	1	6555	371	6374	371	9346	2	40
30	6208	49	6231	48	0656	2	6185	370	6004	370	9344	2	30
40	6256	48	6280	49	0658	2	5816	369	5634	370	9343	1	20
50	6305	49	6329	49	0660	2	5447	369	5266	368	9341	2	10
5 0	0.036353	48	0.036377	48	1.000661	1	27.5080	367	27.4899	367	0.999339	2	**55** 0
10	6401	48	6426	49	0663	2	4714	366	4532	367	9337	2	50
20	6450	49	6474	48	0665	2	4349	365	4167	365	9335	2	40
30	6498	48	6523	49	0667	2	3985	364	3802	365	9334	1	30
40	6547	49	6571	48	0669	2	3622	363	3439	363	9332	2	20
50	6595	48	6620	49	0670	1	3259	363	3076	363	9330	2	10
6 0	0.036644	49	0.036668	48	1.000672	2	27.2898	361	27.2715	361	0.999328	2	**54** 0
10	6692	48	6717	49	0674	2	2538	360	2354	361	9327	1	50
20	6741	49	6765	48	0676	2	2178	360	1995	359	9325	2	40
30	6789	48	6814	49	0677	1	1820	358	1636	359	9323	2	30
40	6838	49	6863	49	0679	2	1462	358	1278	358	9321	2	20
50	6886	48	6911	48	0681	2	1106	356	0921	357	9319	2	10
7 0	0.036934	48	0.036960	49	1.000683	2	27.0750	356	27.0566	355	0.999318	1	**53** 0
10	6983	49	7008	48	0685	2	0396	354	27.0211	355	9316	2	50
20	7031	48	7057	49	0686	1	27.0042	354	26.9857	354	9314	2	40
30	7080	49	7105	48	0688	2	26.9689	353	9504	353	9312	2	30
40	7128	48	7154	49	0690	2	9337	352	9151	353	9311	1	20
50	7177	49	7202	48	0692	2	8986	351	8800	351	9309	2	10
8 0	0.037225	48	0.037251	49	1.000694	2	26.8636	350	26.8450	350	0.999307	2	**52** 0
10	7274	49	7299	48	0695	1	8287	349	8100	350	9305	2	50
20	7322	48	7348	49	0697	2	7939	348	7752	348	9303	2	40
30	7370	48	7397	49	0699	2	7591	348	7404	348	9301	2	30
40	7419	49	7445	48	0701	2	7245	346	7058	346	9300	1	20
50	7467	48	7494	49	0703	2	6899	346	6712	346	9298	2	10
9 0	0.037516	49	0.037542	48	1.000704	1	26.6555	344	26.6367	345	0.999296	2	**51** 0
10	7564	48	7591	49	0706	2	6211	344	6023	344	9294	2	50
20	7613	49	7639	48	0708	2	5868	343	5680	343	9292	2	40
30	7661	48	7688	49	0710	2	5526	342	5337	343	9291	1	30
40	7710	49	7736	48	0712	2	5185	341	4996	341	9289	2	20
50	7758	48	7785	49	0714	2	4844	341	4656	340	9287	2	10
10 0	0.037806	48	0.037834	49	1.000715	1	26.4505	339	26.4316	340	0.999285	2	**50** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

293

1	29.3
2	58.6
3	87.9
4	117.2
5	146.5
6	175.8
7	205.1
8	234.4
9	263.7

300

1	30.0
2	60.0
3	90.0
4	120.0
5	150.0
6	180.0
7	210.0
8	240.0
9	270.0

310

1	31.0
2	62.0
3	93.0
4	124.0
5	155.0
6	186.0
7	217.0
8	248.0
9	279.0

330

1	33.0
2	66.0
3	99.0
4	132.0
5	165.0
6	198.0
7	231.0
8	264.0
9	297.0

350

1	35.0
2	70.0
3	105.0
4	140.0
5	175.0
6	210.0
7	245.0
8	280.0
9	315.0

370

1	37.0
2	74.0
3	111.0
4	148.0
5	185.0
6	222.0
7	259.0
8	296.0
9	333.0

390

1	39.0
2	78.0
3	117.0
4	156.0
5	195.0
6	234.0
7	273.0
8	312.0
9	351.0

87°

2°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.037806		0.037834		1.000715		26.4505		26.4316		0.999285		**50′** 0″
10	7855	49	7882	48	0717	2	4167	338	3977	339	9283	2	50
20	7903	48	7931	49	0719	2	3829	338	3639	338	9281	2	40
30	7952	49	7979	48	0721	2	3492	337	3302	337	9280	1	30
40	8000	48	8028	49	0723	2	3156	336	2966	336	9278	2	20
50	8049	49	8076	48	0725	2	2821	335	2631	335	9276	2	10
11 0	0.038097	48	0.038125	49	1.000726	1	26.2487	334	26.2296	335	0.999274	2	**49** 0
10	8146	49	8173	48	0728	2	2154	333	1963	333	9272	2	50
20	8194	48	8222	49	0730	2	1821	333	1630	333	9270	2	40
30	8242	48	8270	48	0732	2	1489	332	1298	332	9268	2	30
40	8291	49	8319	49	0734	2	1159	330	0967	331	9267	1	20
50	8339	48	8368	49	0736	2	0829	330	0637	330	9265	2	10
12 0	0.038388	49	0.038416	48	1.000738	2	26.0499	330	26.0307	330	0.999263	2	**48** 0
10	8436	48	8465	49	0739	1	26.0171	328	25.9979	328	9261	2	50
20	8485	49	8513	48	0741	2	25.9844	327	9651	328	9259	2	40
30	8533	48	8562	49	0743	2	9517	327	9324	327	9257	2	30
40	8582	49	8610	48	0745	2	9191	326	8998	326	9255	2	20
50	8630	48	8659	49	0747	2	8866	325	8673	325	9254	1	10
13 0	0.038678	48	0.038707	48	1.000749	2	25.8542	324	25.8348	325	0.999252	2	**47** 0
10	8727	49	8756	49	0751	2	8218	324	8025	323	9250	2	50
20	8775	48	8805	49	0753	2	7896	322	7702	323	9248	2	40
30	8824	49	8853	48	0754	1	7574	322	7380	322	9246	2	30
40	8872	48	8902	49	0756	2	7253	321	7058	322	9244	2	20
50	8921	49	8950	48	0758	2	6933	320	6738	320	9242	2	10
14 0	0.038969	48	0.038999	49	1.000760	2	25.6613	320	25.6418	320	0.999240	2	**46** 0
10	9018	49	9047	48	0762	2	6295	318	6099	319	9239	1	50
20	9066	48	9096	49	0764	2	5977	318	5781	318	9237	2	40
30	9114	49	9144	48	0766	2	5660	317	5464	317	9235	2	30
40	9163	48	9193	49	0768	2	5344	316	5148	316	9233	2	20
50	9211	49	9242	49	0770	2	5028	316	4832	316	9231	2	10
15 0	0.039260	49	0.039290	48	1.000772	2	25.4713	315	25.4517	315	0.999229	2	**45** 0
10	9308	48	9339	49	0773	1	4399	314	4203	314	9227	2	50
20	9357	49	9387	48	0775	2	4086	313	3889	314	9225	2	40
30	9405	48	9436	49	0777	2	3774	312	3577	312	9223	2	30
40	9454	49	9484	48	0779	2	3462	312	3265	312	9221	2	20
50	9502	48	9533	49	0781	2	3152	310	2954	311	9219	2	10
16 0	0.039550	48	0.039581	48	1.000783	2	25.2841	311	25.2644	310	0.999218	1	**44** 0
10	9599	49	9630	49	0785	2	2532	309	2334	310	9216	2	50
20	9647	48	9679	49	0787	2	2224	308	2025	309	9214	2	40
30	9696	49	9727	48	0789	2	1916	308	1717	308	9212	2	30
40	9744	48	9776	49	0791	2	1609	307	1410	307	9210	2	20
50	9793	49	9824	48	0793	2	1302	307	1103	307	9208	2	10
17 0	0.039841	48	0.039873	49	1.000795	2	25.0997	305	25.0798	305	0.999206	2	**43** 0
10	9890	49	9921	48	0797	2	0692	305	0493	305	9204	2	50
20	9938	48	0.039970	49	0798	1	0388	304	25.0188	305	9202	2	40
30	0.039986	48	0.040018	48	0800	2	25.0085	303	24.9885	303	9200	2	30
40	0.040035	49	0067	49	0802	2	24.9782	303	9582	303	9198	2	20
50	0083	48	0116	49	0804	2	9480	302	9280	302	9196	2	10
18 0	0.040132	49	0.040164	48	1.000806	2	24.9179	301	24.8978	302	0.999194	2	**42** 0
10	0180	48	0213	49	0808	2	8879	300	8678	300	9192	2	50
20	0229	49	0261	48	0810	2	8579	300	8378	300	9190	2	40
30	0277	48	0310	49	0812	2	8280	299	8078	300	9189	1	30
40	0326	49	0358	48	0814	2	7982	298	7780	298	9187	2	20
50	0374	48	0407	49	0816	2	7684	298	7482	298	9185	2	10
19 0	0.040422	48	0.040456	49	1.000818	2	24.7387	297	24.7185	297	0.999183	2	**41** 0
10	0471	49	0504	48	0820	2	7091	296	6889	296	9181	2	50
20	0519	48	0553	49	0822	2	6796	295	6593	296	9179	2	40
30	0568	49	0601	48	0824	2	6501	295	6298	295	9177	2	30
40	0616	48	0650	49	0826	2	6207	294	6004	294	9175	2	20
50	0665	49	0698	48	0828	2	5914	293	5710	294	9173	2	10
20 0	0.040713	48	0.040747	49	1.000830	2	24.5621	293	24.5418	292	0.999171	2	**40** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

295	
1	29.5
2	59.0
3	88.5
4	118.0
5	147.5
6	177.0
7	206.5
8	236.0
9	265.5

305	
1	30.5
2	61.0
3	91.5
4	122.0
5	152.5
6	183.0
7	213.5
8	244.0
9	274.5

320	
1	32.0
2	64.0
3	96.0
4	128.0
5	160.0
6	192.0
7	224.0
8	256.0
9	288.0

340	
1	34.0
2	68.0
3	102.0
4	136.0
5	170.0
6	204.0
7	238.0
8	272.0
9	306.0

360	
1	36.0
2	72.0
3	108.0
4	144.0
5	180.0
6	216.0
7	252.0
8	288.0
9	324.0

380	
1	38.0
2	76.0
3	114.0
4	152.0
5	190.0
6	228.0
7	266.0
8	304.0
9	342.0

398	
1	39.8
2	79.6
3	119.4
4	159.2
5	199.0
6	238.8
7	278.6
8	318.4
9	358.2

87°

2°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.040713		0.040747		1.000830		24.5621		24.5418		0.999171		**40′** 0″
10	0762	49	0795	48	0832	2	5329	292	5125	293	9169	2	50
20	0810	48	0844	49	0834	2	5038	291	4834	291	9167	2	40
30	0858	48	0893	49	0836	2	4748	290	4543	291	9165	2	30
40	0907	49	0941	48	0838	2	4458	290	4253	290	9163	2	20
50	0955	48	0990	49	0840	2	4169	289	3964	289	9161	2	10
21 0	0.041004	49	0.041038	48	1.000842	2	24.3880	289	24.3675	289	0.999159	2	**39** 0
10	1052	48	1087	49	0844	2	3592	288	3387	288	9157	2	50
20	1101	49	1135	48	0846	2	3305	287	3100	287	9155	2	40
30	1149	48	1184	49	0848	2	3019	286	2813	287	9153	2	30
40	1198	49	1233	49	0850	2	2733	286	2527	286	9151	2	20
50	1246	48	1281	48	0852	2	2448	285	2242	285	9149	2	10
22 0	0.041294	48	0.041330	49	1.000854	2	24.2164	284	24.1957	285	0.999147	2	**38** 0
10	1343	49	1378	48	0856	2	1880	284	1673	284	9145	2	50
20	1391	48	1427	49	0858	2	1597	283	1390	283	9143	2	40
30	1440	49	1475	48	0860	2	1314	283	1107	283	9141	2	30
40	1488	48	1524	49	0862	2	1033	281	0825	282	9139	2	20
50	1537	49	1572	48	0864	2	0752	281	0544	281	9137	2	10
23 0	0.041585	48	0.041621	49	1.000866	2	24.0471	281	24.0263	281	0.999135	2	**37** 0
10	1633	48	1670	49	0868	2	24.0191	280	23.9983	280	9133	2	50
20	1682	49	1718	48	0870	2	23.9912	279	9704	279	9131	2	40
30	1730	48	1767	49	0872	2	9634	278	9425	279	9129	2	30
40	1779	49	1815	48	0874	2	9356	278	9147	278	9127	2	20
50	1827	48	1864	49	0876	2	9079	277	8870	277	9125	2	10
24 0	0.041876	49	0.041912	48	1.000878	2	23.8802	277	23.8593	277	0.999123	2	**36** 0
10	1924	48	1961	49	0880	2	8526	276	8317	276	9121	2	50
20	1973	49	2010	49	0882	2	8251	275	8041	276	9119	2	40
30	2021	48	2058	48	0884	2	7976	275	7766	275	9117	2	30
40	2069	48	2107	49	0886	2	7702	274	7492	274	9115	2	20
50	2118	49	2155	48	0888	2	7429	273	7218	274	9113	2	10
25 0	0.042166	48	0.042204	49	1.000890	2	23.7156	273	23.6945	273	0.999111	2	**35** 0
10	2215	49	2252	48	0892	2	6884	272	6673	272	9109	2	50
20	2263	48	2301	49	0894	2	6613	271	6401	272	9107	2	40
30	2312	49	2350	49	0896	2	6342	271	6130	271	9104	3	30
40	2360	48	2398	48	0898	2	6072	270	5860	270	9102	2	20
50	2408	48	2447	49	0900	2	5802	270	5590	270	9100	2	10
26 0	0.042457	49	0.042495	48	1.000903	3	23.5533	269	23.5321	269	0.999098	2	**34** 0
10	2505	48	2544	49	0905	2	5265	268	5052	269	9096	2	50
20	2554	49	2592	48	0907	2	4997	268	4784	268	9094	2	40
30	2602	48	2641	49	0909	2	4730	267	4516	268	9092	2	30
40	2651	49	2690	49	0911	2	4463	267	4250	266	9090	2	20
50	2699	48	2738	48	0913	2	4197	266	3983	267	9088	2	10
27 0	0.042748	49	0.042787	49	1.000915	2	23.3932	265	23.3718	265	0.999086	2	**33** 0
10	2796	48	2835	48	0917	2	3667	265	3453	265	9084	2	50
20	2844	48	2884	49	0919	2	3403	264	3188	265	9082	2	40
30	2893	49	2932	48	0921	2	3139	264	2925	263	9080	2	30
40	2941	48	2981	49	0923	2	2876	263	2661	264	9078	2	20
50	2990	49	3030	49	0925	2	2614	262	2399	262	9076	2	10
28 0	0.043038	48	0.043078	48	1.000927	2	23.2352	262	23.2137	262	0.999073	3	**32** 0
10	3087	49	3127	49	0930	3	2091	261	1875	262	9071	2	50
20	3135	48	3175	48	0932	2	1830	261	1614	261	9069	2	40
30	3183	48	3224	49	0934	2	1570	260	1354	260	9067	2	30
40	3232	49	3272	48	0936	2	1311	259	1094	260	9065	2	20
50	3280	48	3321	49	0938	2	1052	259	0835	259	9063	2	10
29 0	0.043329	49	0.043370	49	1.000940	2	23.0794	258	23.0577	258	0.999061	2	**31** 0
10	3377	48	3418	48	0942	2	0536	258	0319	258	9059	2	50
20	3426	49	3467	49	0944	2	0279	257	23.0061	258	9057	2	40
30	3474	48	3515	48	0946	2	23.0022	257	22.9805	256	9055	2	30
40	3523	49	3564	49	0948	2	22.9766	256	9548	257	9052	3	20
50	3571	48	3612	48	0951	3	9511	255	9293	255	9050	2	10
30 0	0.043619	48	0.043661	49	1.000953	2	22.9256	255	22.9038	255	0.999048	2	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

224	
1	22.4
2	44.8
3	67.2
4	89.6
5	112.0
6	134.4
7	156.8
8	179.2
9	201.6

230	
1	23.0
2	46.0
3	69.0
4	92.0
5	115.0
6	138.0
7	161.0
8	184.0
9	207.0

240	
1	24.0
2	48.0
3	72.0
4	96.0
5	120.0
6	144.0
7	168.0
8	192.0
9	216.0

250	
1	25.0
2	50.0
3	75.0
4	100.0
5	125.0
6	150.0
7	175.0
8	200.0
9	225.0

260	
1	26.0
2	52.0
3	78.0
4	104.0
5	130.0
6	156.0
7	182.0
8	208.0
9	234.0

270	
1	27.0
2	54.0
3	81.0
4	108.0
5	135.0
6	162.0
7	189.0
8	216.0
9	243.0

290	
1	29.0
2	58.0
3	87.0
4	116.0
5	145.0
6	174.0
7	203.0
8	232.0
9	261.0

87°

2°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.043619		0.043661		1.000953		22.9256		22.9038		0.999048		**30′** 0″
10	3668	49	3710	49	0955	2	9002	254	8783	255	9046	2	50
20	3716	48	3758	48	0957	2	8748	254	8529	254	9044	2	40
30	3765	49	3807	49	0959	2	8495	253	8276	253	9042	2	30
40	3813	48	3855	48	0961	2	8242	253	8023	253	9040	2	20
50	3862	49	3904	49	0963	2	7990	252	7771	252	9038	2	10
31 0	0.043910	48	0.043952	48	1.000965	2	22.7739	251	22.7519	252	0.999035	3	**29** 0
10	3958	48	4001	49	0968	3	7488	251	7268	251	9033	2	50
20	4007	49	4050	49	0970	2	7237	251	7017	251	9031	2	40
30	4055	48	4098	48	0972	2	6987	250	6767	250	9029	2	30
40	4104	49	4147	49	0974	2	6738	249	6518	249	9027	2	20
50	4152	48	4195	48	0976	2	6489	249	6269	249	9025	2	10
32 0	0.044201	49	0.044244	49	1.000978	2	22.6241	248	22.6020	249	0.999023	2	**28** 0
10	4249	48	4292	48	0980	2	5994	247	5772	248	9021	2	50
20	4297	48	4341	49	0983	3	5747	247	5525	247	9018	3	40
30	4346	49	4390	49	0985	2	5500	247	5278	247	9016	2	30
40	4394	48	4438	48	0987	2	5254	246	5032	246	9014	2	20
50	4443	49	4487	49	0989	2	5008	246	4786	246	9012	2	10
33 0	0.044491	48	0.044535	48	1.000991	2	22.4764	244	22.4541	245	0.999010	2	**27** 0
10	4540	49	4584	49	0993	2	4519	245	4296	245	9008	2	50
20	4588	48	4632	48	0996	3	4275	244	4052	244	9005	3	40
30	4637	49	4681	49	0998	2	4032	243	3809	243	9003	2	30
40	4685	48	4730	49	1000	2	3789	243	3566	243	9001	2	20
50	4733	48	4778	48	1002	2	3547	242	3323	243	8999	2	10
34 0	0.044782	49	0.044827	49	1.001004	2	22.3305	242	22.3081	242	0.998997	2	**26** 0
10	4830	48	4875	48	1006	2	3064	241	2839	242	8995	2	50
20	4879	49	4924	49	1009	3	2823	241	2599	240	8992	3	40
30	4927	48	4973	49	1011	2	2583	240	2358	241	8990	2	30
40	4976	49	5021	48	1013	2	2343	240	2118	240	8988	2	20
50	5024	48	5070	49	1015	2	2104	239	1879	239	8986	2	10
35 0	0.045072	48	0.045118	48	1.001017	2	22.1865	239	22.1640	239	0.998984	2	**25** 0
10	5121	49	5167	49	1020	3	1627	238	1401	239	8982	2	50
20	5169	48	5215	48	1022	2	1389	238	1164	237	8979	3	40
30	5218	49	5264	49	1024	2	1152	237	0926	238	8977	2	30
40	5266	48	5313	49	1026	2	0916	236	0689	237	8975	2	20
50	5315	49	5361	48	1028	2	0680	236	0453	236	8973	2	10
36 0	0.045363	48	0.045410	49	1.001030	2	22.0444	236	22.0217	236	0.998971	2	**24** 0
10	5411	48	5458	48	1033	3	22.0209	235	21.9982	235	8968	3	50
20	5460	49	5507	49	1035	2	21.9974	235	9747	235	8966	2	40
30	5508	48	5555	48	1037	2	9740	234	9513	234	8964	2	30
40	5557	49	5604	49	1039	2	9507	233	9279	234	8962	2	20
50	5605	48	5653	49	1042	3	9274	233	9045	234	8960	2	10
37 0	0.045654	49	0.045701	48	1.001044	2	21.9041	233	21.8813	232	0.998957	3	**23** 0
10	5702	48	5750	49	1046	2	8809	232	8580	233	8955	2	50
20	5750	48	5798	48	1048	2	8577	232	8348	232	8953	2	40
30	5799	49	5847	49	1050	2	8346	231	8117	231	8951	2	30
40	5847	48	5896	49	1053	3	8115	231	7886	231	8948	3	20
50	5896	49	5944	48	1055	2	7885	230	7656	230	8946	2	10
38 0	0.045944	48	0.045993	49	1.001057	2	21.7656	229	21.7426	230	0.998944	2	**22** 0
10	5993	49	6041	48	1059	2	7426	230	7196	230	8942	2	50
20	6041	48	6090	49	1062	3	7198	228	6967	229	8940	2	40
30	6089	48	6138	48	1064	2	6969	229	6739	228	8937	3	30
40	6138	49	6187	49	1066	2	6742	227	6511	228	8935	2	20
50	6186	48	6236	49	1068	2	6514	228	6283	228	8933	2	10
39 0	0.046235	49	0.046284	48	1.001071	3	21.6288	226	21.6056	227	0.998931	2	**21** 0
10	6283	48	6333	49	1073	2	6061	227	5830	226	8928	3	50
20	6332	49	6381	48	1075	2	5835	226	5604	226	8926	2	40
30	6380	48	6430	49	1077	2	5610	225	5378	226	8924	2	30
40	6428	48	6479	49	1080	3	5385	225	5153	225	8922	2	20
50	6477	49	6527	48	1082	2	5161	224	4928	225	8919	3	10
40 0	0.046525	48	0.046576	49	1.001084	2	21.4937	224	21.4704	224	0.998917	2	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49		227		235		245		255		265		280		293	
1	4.9	1	22.7	1	23.5	1	24.5	1	25.5	1	26.5	1	28.0	1	29.3
2	9.8	2	45.4	2	47.0	2	49.0	2	51.0	2	53.0	2	56.0	2	58.6
3	14.7	3	68.1	3	70.5	3	73.5	3	76.5	3	79.5	3	84.0	3	87.9
4	19.6	4	90.8	4	94.0	4	98.0	4	102.0	4	106.0	4	112.0	4	117.2
5	24.5	5	113.5	5	117.5	5	122.5	5	127.5	5	132.5	5	140.0	5	146.5
6	29.4	6	136.2	6	141.0	6	147.0	6	153.0	6	159.0	6	168.0	6	175.8
7	34.3	7	158.9	7	164.5	7	171.5	7	178.5	7	185.5	7	196.0	7	205.1
8	39.2	8	181.6	8	188.0	8	196.0	8	204.0	8	212.0	8	224.0	8	234.4
9	44.1	9	204.3	9	211.5	9	220.5	9	229.5	9	238.5	9	252.0	9	263.7

87°

2°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.046525		0.046576		1.001084		21.4937		21.4704		0.998917		**20′** 0″
10	6574	49	6624	48	1086	2	4713	224	4480	224	8915	2	50
20	6622	48	6673	49	1089	3	4490	223	4257	223	8913	2	40
30	6671	49	6722	49	1091	2	4268	222	4034	223	8910	3	30
40	6719	48	6770	48	1093	2	4046	222	3812	222	8908	2	20
50	6767	48	6819	49	1095	2	3824	222	3590	222	8906	2	10
41 0	0.046816	49	0.046867	48	1.001098	3	21.3603	221	21.3369	221	0.998904	2	**19** 0
10	6864	48	6916	49	1100	2	3382	221	3148	221	8901	3	50
20	6913	49	6964	48	1102	2	3162	220	2927	221	8899	2	40
30	6961	48	7013	49	1105	3	2942	220	2707	220	8897	2	30
40	7010	49	7062	49	1107	2	2723	219	2487	220	8894	3	20
50	7058	48	7110	48	1109	2	2504	219	2268	219	8892	2	10
42 0	0.047106	48	0.047159	49	1.001111	2	21.2285	219	21.2049	219	0.998890	2	**18** 0
10	7155	49	7207	48	1114	3	2067	218	1831	218	8888	2	50
20	7203	48	7256	49	1116	2	1850	217	1613	218	8885	3	40
30	7252	49	7305	49	1118	2	1632	218	1396	217	8883	2	30
40	7300	48	7353	48	1121	3	1416	216	1179	217	8881	2	20
50	7349	49	7402	49	1123	2	1200	216	0963	216	8878	3	10
43 0	0.047397	48	0.047450	48	1.001125	2	21.0984	216	21.0747	216	0.998876	2	**17** 0
10	7445	48	7499	49	1127	2	0768	216	0531	216	8874	2	50
20	7494	49	7548	49	1130	3	0553	215	0316	215	8872	2	40
30	7542	48	7596	48	1132	2	0339	214	21.0101	215	8869	3	30
40	7591	49	7645	49	1134	2	21.0125	214	20.9887	214	8867	2	20
50	7639	48	7693	48	1137	3	20.9911	214	9673	214	8865	2	10
44 0	0.047688	49	0.047742	49	1.001139	2	20.9698	213	20.9460	213	0.998862	3	**16** 0
10	7736	48	7790	48	1141	2	9486	212	9247	213	8860	2	50
20	7784	48	7839	49	1144	3	9273	213	9034	213	8858	2	40
30	7833	49	7888	49	1146	2	9061	212	8822	212	8855	3	30
40	7881	48	7936	48	1148	2	8850	211	8610	212	8853	2	20
50	7930	49	7985	49	1151	3	8639	211	8399	211	8851	2	10
45 0	0.047978	48	0.048033	48	1.001153	2	20.8428	211	20.8188	211	0.998848	3	**15** 0
10	8027	49	8082	49	1155	2	8218	210	7978	210	8846	2	50
20	8075	48	8131	49	1158	3	8008	210	7768	210	8844	2	40
30	8123	48	8179	48	1160	2	7799	209	7558	210	8841	3	30
40	8172	49	8228	49	1162	2	7590	209	7349	209	8839	2	20
50	8220	48	8276	48	1165	3	7382	208	7140	209	8837	2	10
46 0	0.048269	49	0.048325	49	1.001167	2	20.7174	208	20.6932	208	0.998834	3	**14** 0
10	8317	48	8374	49	1169	2	6966	208	6724	208	8832	2	50
20	8366	49	8422	48	1172	3	6759	207	6517	207	8830	2	40
30	8414	48	8471	49	1174	2	6552	207	6310	207	8827	3	30
40	8462	48	8519	48	1176	2	6346	206	6103	207	8825	2	20
50	8511	49	8568	49	1179	3	6140	206	5897	206	8823	2	10
47 0	0.048559	48	0.048617	49	1.001181	2	20.5934	206	20.5691	206	0.998820	3	**13** 0
10	8608	49	8665	48	1183	2	5729	205	5486	205	8818	2	50
20	8656	48	8714	49	1186	3	5524	205	5281	205	8816	2	40
30	8704	48	8762	48	1188	2	5320	204	5076	205	8813	3	30
40	8753	49	8811	49	1191	3	5116	204	4872	204	8811	2	20
50	8801	48	8860	49	1193	2	4912	204	4668	204	8809	2	10
48 0	0.048850	49	0.048908	48	1.001195	2	20.4709	203	20.4465	203	0.998806	3	**12** 0
10	8898	48	8957	49	1198	3	4507	202	4262	203	8804	2	50
20	8947	49	9005	48	1200	2	4304	203	4059	203	8801	3	40
30	8995	48	9054	49	1202	2	4102	202	3857	202	8799	2	30
40	9043	48	9103	49	1205	3	3901	201	3655	202	8797	2	20
50	9092	49	9151	48	1207	2	3700	201	3454	201	8794	3	10
49 0	0.049140	48	0.049200	49	1.001210	3	20.3499	201	20.3253	201	0.998792	2	**11** 0
10	9189	49	9248	48	1212	2	3299	200	3053	200	8790	2	50
20	9237	48	9297	49	1214	2	3099	200	2852	201	8787	3	40
30	9286	49	9346	49	1217	3	2899	200	2653	199	8785	2	30
40	9334	48	9394	48	1219	2	2700	199	2453	200	8782	3	20
50	9382	48	9443	49	1222	3	2501	199	2254	199	8780	2	10
50 0	0.049431	49	0.049491	48	1.001224	2	20.2303	198	20.2056	198	0.998778	2	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

177

1	17.7
2	35.4
3	53.1
4	70.8
5	88.5
6	106.2
7	123.9
8	141.6
9	159.3

183

1	18.3
2	36.6
3	54.9
4	73.2
5	91.5
6	109.8
7	128.1
8	146.4
9	164.7

189

1	18.9
2	37.8
3	56.7
4	75.6
5	94.5
6	113.4
7	132.3
8	151.2
9	170.1

195

1	19.5
2	39.0
3	58.5
4	78.0
5	97.5
6	117.0
7	136.5
8	156.0
9	175.5

200

1	20.0
2	40.0
3	60.0
4	80.0
5	100.0
6	120.0
7	140.0
8	160.0
9	180.0

210

1	21.0
2	42.0
3	63.0
4	84.0
5	105.0
6	126.0
7	147.0
8	168.0
9	189.0

220

1	22.0
2	44.0
3	66.0
4	88.0
5	110.0
6	132.0
7	154.0
8	176.0
9	198.0

2°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.049431		0.049491		1.001224		20.2303		20.2056		0.998778		**10′** 0″
10	9479	48	9540	49	1226	2	2105	198	1857	199	8775	3	50
20	9528	49	9589	49	1229	3	1907	198	1659	198	8773	2	40
30	9576	48	9637	48	1231	2	1710	197	1462	197	8770	3	30
40	9625	49	9686	49	1234	3	1513	197	1265	197	8768	2	20
50	9673	48	9734	48	1236	2	1317	196	1068	197	8766	2	10
51 0	0.049721	48	0.049783	49	1.001238	2	20.1121	196	20.0872	196	0.998763	3	**9** 0
10	9770	49	9832	49	1241	3	0925	196	0676	196	8761	2	50
20	9818	48	9880	48	1243	2	0730	195	0481	195	8758	3	40
30	9867	49	9929	49	1246	3	0535	195	0285	196	8756	2	30
40	9915	48	0.049977	48	1248	2	0340	195	20.0091	194	8753	3	20
50	0.049963	48	0.050026	49	1251	3	20.0146	194	19.9896	195	8751	2	10
52 0	0.050012	49	0.050075	49	1.001253	2	19.9952	194	19.9702	194	0.998749	2	**8** 0
10	0060	48	0123	48	1255	2	9759	193	9509	193	8746	3	50
20	0109	49	0172	49	1258	3	9566	193	9315	194	8744	2	40
30	0157	48	0220	48	1260	2	9373	193	9122	193	8741	3	30
40	0206	49	0269	49	1263	3	9181	192	8930	192	8739	2	20
50	0254	48	0318	49	1265	2	8989	192	8738	192	8736	3	10
53 0	0.050302	48	0.050366	48	1.001268	3	19.8798	191	19.8546	192	0.998734	2	**7** 0
10	0351	49	0415	49	1270	2	8606	192	8354	192	8732	2	50
20	0399	48	0463	48	1272	2	8416	190	8163	191	8729	3	40
30	0448	49	0512	49	1275	3	8225	191	7973	190	8727	2	30
40	0496	48	0561	49	1277	2	8035	190	7782	191	8724	3	20
50	0545	49	0609	48	1280	3	7845	190	7592	190	8722	2	10
54 0	0.050593	48	0.050658	49	1.001282	2	19.7656	189	19.7403	189	0.998719	3	**6** 0
10	0641	48	0706	48	1285	3	7467	189	7214	189	8717	2	50
20	0690	49	0755	49	1287	2	7278	189	7025	189	8714	3	40
30	0738	48	0804	49	1290	3	7090	188	6836	189	8712	2	30
40	0787	49	0852	48	1292	2	6902	188	6648	188	8710	2	20
50	0835	48	0901	49	1295	3	6715	187	6460	188	8707	3	10
55 0	0.050883	48	0.050949	48	1.001297	2	19.6528	187	19.6273	187	0.998705	2	**5** 0
10	0932	49	0998	49	1300	3	6341	187	6086	187	8702	3	50
20	0980	48	1047	49	1302	2	6154	187	5899	187	8700	2	40
30	1029	49	1095	48	1305	3	5968	186	5713	186	8697	3	30
40	1077	48	1144	49	1307	2	5782	186	5527	186	8695	2	20
50	1126	49	1192	48	1309	2	5597	185	5341	186	8692	3	10
56 0	0.051174	48	0.051241	49	1.001312	3	19.5412	185	19.5156	185	0.998690	2	**4** 0
10	1222	48	1290	49	1314	2	5227	185	4971	185	8687	3	50
20	1271	49	1338	48	1317	3	5043	184	4786	185	8685	2	40
30	1319	48	1387	49	1319	2	4859	184	4602	184	8682	3	30
40	1368	49	1436	49	1322	3	4675	184	4418	184	8680	2	20
50	1416	48	1484	48	1324	2	4492	183	4235	183	8677	3	10
57 0	0.051464	48	0.051533	49	1.001327	3	19.4309	183	19.4051	184	0.998675	2	**3** 0
10	1513	49	1581	48	1329	2	4126	183	3868	183	8672	3	50
20	1561	48	1630	49	1332	3	3944	182	3686	182	8670	2	40
30	1610	49	1679	49	1334	2	3762	182	3504	182	8667	3	30
40	1658	48	1727	48	1337	3	3580	182	3322	182	8665	2	20
50	1707	49	1776	49	1339	2	3399	181	3140	182	8662	3	10
58 0	0.051755	48	0.051824	48	1.001342	3	19.3218	181	19.2959	181	0.998660	2	**2** 0
10	1803	48	1873	49	1345	3	3038	180	2778	181	8657	3	50
20	1852	49	1922	49	1347	2	2857	181	2598	180	8655	2	40
30	1900	48	1970	48	1350	3	2677	180	2418	180	8652	3	30
40	1949	49	2019	49	1352	2	2498	179	2238	180	8650	2	20
50	1997	48	2067	48	1355	3	2319	179	2058	180	8647	3	10
59 0	0.052045	48	0.052116	49	1.001357	2	19.2140	179	19.1879	179	0.998645	2	**1** 0
10	2094	49	2165	49	1360	3	1961	179	1700	179	8642	3	50
20	2142	48	2213	48	1362	2	1783	178	1522	178	8640	2	40
30	2191	49	2262	49	1365	3	1605	178	1344	178	8637	3	30
40	2239	48	2311	49	1367	2	1427	178	1166	178	8635	2	20
50	2288	49	2359	48	1370	3	1250	177	0989	177	8632	3	10
60 0	0.052336	48	0.052408	49	1.001372	2	19.1073	177	19.0811	178	0.998630	2	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

180	
1	18.0
2	36.0
3	54.0
4	72.0
5	90.0
6	108.0
7	126.0
8	144.0
9	162.0

186	
1	18.6
2	37.2
3	55.8
4	74.4
5	93.0
6	111.6
7	130.2
8	148.8
9	167.4

192	
1	19.2
2	38.4
3	57.6
4	76.8
5	96.0
6	115.2
7	134.4
8	153.6
9	172.8

198	
1	19.8
2	39.6
3	59.4
4	79.2
5	99.0
6	118.8
7	138.6
8	158.4
9	178.2

205	
1	20.5
2	41.0
3	61.5
4	82.0
5	102.5
6	123.0
7	143.5
8	164.0
9	184.5

215	
1	21.5
2	43.0
3	64.5
4	86.0
5	107.5
6	129.0
7	150.5
8	172.0
9	193.5

224	
1	22.4
2	44.8
3	67.2
4	89.6
5	112.0
6	134.4
7	156.8
8	179.2
9	201.6

87°

3°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.052336		0.052408		1.001372		19.1073		19.0811		0.998630		**60′** 0″
10	2384	48	2456	48	1375	3	0897	176	0635	176	8627	3	50
20	2433	49	2505	49	1377	2	0720	177	0458	177	8624	3	40
30	2481	48	2554	49	1380	3	0544	176	0282	176	8622	2	30
40	2530	49	2602	48	1383	3	0369	175	19.0106	176	8619	3	20
50	2578	48	2651	49	1385	2	0194	175	18.9930	176	8617	2	10
1 0	0.052626	48	0.052699	48	1.001388	3	19.0019	175	18.9755	175	0.998614	3	**59** 0
10	2675	49	2748	49	1390	2	18.9844	175	9580	175	8612	2	50
20	2723	48	2797	49	1393	3	9670	174	9406	174	8609	3	40
30	2772	49	2845	48	1395	2	9496	174	9232	174	8607	2	30
40	2820	48	2894	49	1398	3	9322	174	9058	174	8604	3	20
50	2869	49	2943	49	1400	2	9149	173	8884	174	8601	3	10
2 0	0.052917	48	0.052991	48	1.001403	3	18.8975	174	18.8711	173	0.998599	2	**58** 0
10	2965	48	3040	49	1406	3	8803	172	8538	173	8596	3	50
20	3014	49	3088	48	1408	2	8630	173	8365	173	8594	2	40
30	3062	48	3137	49	1411	3	8458	172	8193	172	8591	3	30
40	3111	49	3186	49	1413	2	8286	172	8021	172	8589	2	20
50	3159	48	3234	48	1416	3	8115	171	7849	172	8586	3	10
3 0	0.053207	48	0.053283	49	1.001419	3	18.7944	171	18.7678	171	0.998583	3	**57** 0
10	3256	49	3332	49	1421	2	7773	171	7506	172	8581	2	50
20	3304	48	3380	48	1424	3	7602	171	7336	170	8578	3	40
30	3353	49	3429	49	1426	2	7432	170	7165	171	8576	2	30
40	3401	48	3477	48	1429	3	7262	170	6995	170	8573	3	20
50	3449	48	3526	49	1431	2	7093	169	6825	170	8571	2	10
4 0	0.053498	49	0.053575	49	1.001434	3	18.6923	170	18.6656	169	0.998568	3	**56** 0
10	3546	48	3623	48	1437	3	6754	169	6486	170	8565	3	50
20	3595	49	3672	49	1439	2	6586	168	6317	169	8563	2	40
30	3643	48	3720	48	1442	3	6417	169	6149	168	8560	3	30
40	3692	49	3769	49	1445	3	6249	168	5980	169	8558	2	20
50	3740	48	3818	49	1447	2	6081	168	5812	168	8555	3	10
5 0	0.053788	48	0.053866	48	1.001450	3	18.5914	167	18.5645	167	0.998552	3	**55** 0
10	3837	49	3915	49	1452	2	5747	167	5477	168	8550	2	50
20	3885	48	3964	49	1455	3	5580	167	5310	167	8547	3	40
30	3934	49	4012	48	1458	3	5413	167	5143	167	8545	2	30
40	3982	48	4061	49	1460	2	5247	166	4977	166	8542	3	20
50	4030	48	4109	48	1463	3	5081	166	4811	166	8539	3	10
6 0	0.054079	49	0.054158	49	1.001465	2	18.4915	166	18.4645	166	0.998537	2	**54** 0
10	4127	48	4207	49	1468	3	4750	165	4479	166	8534	3	50
20	4176	49	4255	48	1471	3	4585	165	4314	165	8531	3	40
30	4224	48	4304	49	1473	2	4420	165	4149	165	8529	2	30
40	4272	48	4353	49	1476	3	4256	164	3984	165	8526	3	20
50	4321	49	4401	48	1479	3	4091	165	3820	164	8524	2	10
7 0	0.054369	48	0.054450	49	1.001481	2	18.3927	164	18.3655	165	0.998521	3	**53** 0
10	4418	49	4498	48	1484	3	3764	163	3492	163	8518	3	50
20	4466	48	4547	49	1487	3	3600	164	3328	164	8516	2	40
30	4515	49	4596	49	1489	2	3437	163	3165	163	8513	3	30
40	4563	48	4644	48	1492	3	3275	162	3002	163	8510	3	20
50	4611	48	4693	49	1495	3	3112	163	2839	163	8508	2	10
8 0	0.054660	49	0.054742	49	1.001497	2	18.2950	162	18.2677	162	0.998505	3	**52** 0
10	4708	48	4790	48	1500	3	2788	162	2514	163	8502	3	50
20	4757	49	4839	49	1503	3	2627	161	2353	161	8500	2	40
30	4805	48	4887	48	1505	2	2465	162	2191	162	8497	3	30
40	4853	48	4936	49	1508	3	2304	161	2030	161	8494	3	20
50	4902	49	4985	49	1511	3	2143	161	1869	161	8492	2	10
9 0	0.054950	48	0.055033	48	1.001513	2	18.1983	160	18.1708	161	0.998489	3	**51** 0
10	4999	49	5082	49	1516	3	1823	160	1548	160	8486	3	50
20	5047	48	5131	49	1519	3	1663	160	1388	160	8484	2	40
30	5095	48	5179	48	1521	2	1503	160	1228	160	8481	3	30
40	5144	49	5228	49	1524	3	1344	159	1068	160	8478	3	20
50	5192	48	5276	48	1527	3	1185	159	0909	159	8476	2	10
10 0	0.055241	49	0.055325	49	1.001529	2	18.1026	159	18.0750	159	0.998473	3	**50** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

143

1	14.3
2	28.6
3	42.9
4	57.2
5	71.5
6	85.8
7	100.1
8	114.4
9	128.7

147

1	14.7
2	29.4
3	44.1
4	58.8
5	73.5
6	88.2
7	102.9
8	117.6
9	132.3

151

1	15.1
2	30.2
3	45.3
4	60.4
5	75.5
6	90.6
7	105.7
8	120.8
9	135.9

156

1	15.6
2	31.2
3	46.8
4	62.4
5	78.0
6	93.6
7	109.2
8	124.8
9	140.4

162

1	16.2
2	32.4
3	48.6
4	64.8
5	81.0
6	97.2
7	113.4
8	129.6
9	145.8

168

1	16.8
2	33.6
3	50.4
4	67.2
5	84.0
6	100.8
7	117.6
8	134.4
9	151.2

174

1	17.4
2	34.8
3	52.2
4	69.6
5	87.0
6	104.4
7	121.8
8	139.2
9	156.6

3°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.055241		0.055325		1.001529		18.1026		18.0750		0.998473		**50′** 0″
10	5289	48	5374	49	1532	3	0868	158	0591	159	8470	3	50
20	5337	48	5422	48	1535	3	0709	159	0433	158	8468	2	40
30	5386	49	5471	49	1537	2	0552	157	0274	159	8465	3	30
40	5434	48	5520	49	1540	3	0394	158	18.0116	158	8462	3	20
50	5483	49	5568	48	1543	3	0236	158	17.9959	157	8460	2	10
11 0	0.055531	48	0.055617	49	1.001545	2	18.0079	157	17.9802	157	0.998457	3	**49** 0
10	5579	48	5666	49	1548	3	17.9923	156	9644	158	8454	3	50
20	5628	49	5714	48	1551	3	9766	157	9488	156	8452	2	40
30	5676	48	5763	49	1554	3	9610	156	9331	157	8449	3	30
40	5725	49	5811	48	1556	2	9454	156	9175	156	8446	3	20
50	5773	48	5860	49	1559	3	9298	156	9019	156	8443	3	10
12 0	0.055822	49	0.055909	49	1.001562	3	17.9142	156	17.8863	156	0.998441	2	**48** 0
10	5870	48	5957	48	1564	2	8987	155	8708	155	8438	3	50
20	5918	48	6006	49	1567	3	8832	155	8552	156	8435	3	40
30	5967	49	6055	49	1570	3	8678	154	8398	154	8433	2	30
40	6015	48	6103	48	1573	3	8523	155	8243	155	8430	3	20
50	6064	49	6152	49	1575	2	8369	154	8089	154	8427	3	10
13 0	0.056112	48	0.056200	48	1.001578	3	17.8215	154	17.7934	155	0.998424	3	**47** 0
10	6160	48	6249	49	1581	3	8062	153	7781	153	8422	2	50
20	6209	49	6298	49	1583	2	7908	154	7627	154	8419	3	40
30	6257	48	6346	48	1586	3	7755	153	7474	153	8416	3	30
40	6306	49	6395	49	1589	3	7602	153	7321	153	8414	2	20
50	6354	48	6444	49	1592	3	7450	152	7168	153	8411	3	10
14 0	0.056402	48	0.056492	48	1.001594	2	17.7298	152	17.7015	153	0.998408	3	**46** 0
10	6451	49	6541	49	1597	3	7146	152	6863	152	8405	3	50
20	6499	48	6590	49	1600	3	6994	152	6711	152	8403	2	40
30	6548	49	6638	48	1603	3	6842	152	6559	152	8400	3	30
40	6596	48	6687	49	1605	2	6691	151	6408	151	8397	3	20
50	6644	48	6735	48	1608	3	6540	151	6257	151	8394	3	10
15 0	0.056693	49	0.056784	49	1.001611	3	17.6389	151	17.6106	151	0.998392	2	**45** 0
10	6741	48	6833	49	1614	3	6239	150	5955	151	8389	3	50
20	6790	49	6881	48	1616	2	6089	150	5804	151	8386	3	40
30	6838	48	6930	49	1619	3	5939	150	5654	150	8383	3	30
40	6886	48	6979	49	1622	3	5789	150	5504	150	8381	2	20
50	6935	49	7027	48	1625	3	5639	150	5355	149	8378	3	10
16 0	0.056983	48	0.057076	49	1.001628	3	17.5490	149	17.5205	150	0.998375	3	**44** 0
10	7032	49	7125	49	1630	2	5341	149	5056	149	8372	3	50
20	7080	48	7173	48	1633	3	5193	148	4907	149	8370	2	40
30	7128	48	7222	49	1636	3	5044	149	4758	149	8367	3	30
40	7177	49	7271	49	1639	3	4896	148	4610	148	8364	3	20
50	7225	48	7319	48	1641	2	4748	148	4462	148	8361	3	10
17 0	0.057274	49	0.057368	49	1.001644	3	17.4600	148	17.4314	148	0.998359	2	**43** 0
10	7322	48	7416	48	1647	3	4453	147	4166	148	8356	3	50
20	7370	48	7465	49	1650	3	4306	147	4019	147	8353	3	40
30	7419	49	7514	49	1653	3	4159	147	3872	147	8350	3	30
40	7467	48	7562	48	1655	2	4012	147	3725	147	8347	3	20
50	7516	49	7611	49	1658	3	3866	146	3578	147	8345	2	10
18 0	0.057564	48	0.057660	49	1.001661	3	17.3720	146	17.3432	146	0.998342	3	**42** 0
10	7612	48	7708	48	1664	3	3574	146	3285	147	8339	3	50
20	7661	49	7757	49	1667	3	3428	146	3139	146	8336	3	40
30	7709	48	7806	49	1669	2	3283	145	2994	145	8333	3	30
40	7758	49	7854	48	1672	3	3137	146	2848	146	8331	2	20
50	7806	48	7903	49	1675	3	2992	145	2703	145	8328	3	10
19 0	0.057854	48	0.057951	48	1.001678	3	17.2848	144	17.2558	145	0.998325	3	**41** 0
10	7903	49	8000	49	1681	3	2703	145	2413	145	8322	3	50
20	7951	48	8049	49	1683	2	2559	144	2269	144	8319	3	40
30	8000	49	8097	48	1686	3	2415	144	2125	144	8317	2	30
40	8048	48	8146	49	1689	3	2271	144	1981	144	8314	3	20
50	8096	48	8195	49	1692	3	2128	143	1837	144	8311	3	10
20 0	0.058145	49	0.058243	48	1.001695	3	17.1984	144	17.1693	144	0.998308	3	**40** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

145	
1	14.5
2	29.0
3	43.5
4	58.0
5	72.5
6	87.0
7	101.5
8	116.0
9	130.5

149	
1	14.9
2	29.8
3	44.7
4	59.6
5	74.5
6	89.4
7	104.3
8	119.2
9	134.1

153	
1	15.3
2	30.6
3	45.9
4	61.2
5	76.5
6	91.8
7	107.1
8	122.4
9	137.7

159	
1	15.9
2	31.8
3	47.7
4	63.6
5	79.5
6	95.4
7	111.3
8	127.2
9	143.1

165	
1	16.5
2	33.0
3	49.5
4	66.0
5	82.5
6	99.0
7	115.5
8	132.0
9	148.5

171	
1	17.1
2	34.2
3	51.3
4	68.4
5	85.5
6	102.6
7	119.7
8	136.8
9	153.9

177	
1	17.7
2	35.4
3	53.1
4	70.8
5	88.5
6	106.2
7	123.9
8	141.6
9	159.3

86°

3°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.058145		0.058243		1.001695		17.1984		17.1693		0.998308		**40′** 0″
10	8193	48	8292	49	1698	3	1841	143	1550	143	8305	3	50
20	8242	49	8341	49	1700	2	1698	143	1407	143	8303	2	40
30	8290	48	8389	48	1703	3	1556	142	1264	143	8300	3	30
40	8338	48	8438	49	1706	3	1414	142	1122	142	8297	3	20
50	8387	49	8487	49	1709	3	1272	142	0979	143	8294	3	10
21 0	0.058435	48	0.058535	48	1.001712	3	17.1130	142	17.0837	142	0.998291	3	**39** 0
10	8484	49	8584	49	1715	3	0988	142	0695	142	8288	3	50
20	8532	48	8633	49	1717	2	0847	141	0554	141	8286	2	40
30	8580	48	8681	48	1720	3	0706	141	0412	142	8283	3	30
40	8629	49	8730	49	1723	3	0565	141	0271	141	8280	3	20
50	8677	48	8778	48	1726	3	0424	141	17.0130	141	8277	3	10
22 0	0.058726	49	0.058827	49	1.001729	3	17.0283	141	16.9990	140	0.998274	3	**38** 0
10	8774	48	8876	49	1732	3	0143	140	9849	141	8271	3	50
20	8822	48	8924	48	1735	3	17.0003	140	9709	140	8268	3	40
30	8871	49	8973	49	1737	2	16.9863	140	9569	140	8266	2	30
40	8919	48	9022	49	1740	3	9724	139	9429	140	8263	3	20
50	8968	49	9070	48	1743	3	9585	139	9290	139	8260	3	10
23 0	0.059016	48	0.059119	49	1.001746	3	16.9446	139	16.9150	140	0.998257	3	**37** 0
10	9064	48	9168	49	1749	3	9307	139	9011	139	8254	3	50
20	9113	49	9216	48	1752	3	9168	139	8872	139	8251	3	40
30	9161	48	9265	49	1755	3	9030	138	8734	138	8248	3	30
40	9210	49	9314	49	1758	3	8892	138	8595	139	8246	2	20
50	9258	48	9362	48	1760	2	8754	138	8457	138	8243	3	10
24 0	0.059306	48	0.059411	49	1.001763	3	16.8616	138	16.8319	138	0.998240	3	**36** 0
10	9355	49	9460	49	1766	3	8478	138	8181	138	8237	3	50
20	9403	48	9508	48	1769	3	8341	137	8044	137	8234	3	40
30	9452	49	9557	49	1772	3	8204	137	7907	137	8231	3	30
40	9500	48	9606	49	1775	3	8067	137	7770	137	8228	3	20
50	9548	48	9654	48	1778	3	7931	136	7633	137	8225	3	10
25 0	0.059597	49	0.059703	49	1.001781	3	16.7794	137	16.7496	137	0.998223	2	**35** 0
10	9645	48	9752	49	1784	3	7658	136	7360	136	8220	3	50
20	9694	49	9800	48	1786	2	7522	136	7224	136	8217	3	40
30	9742	48	9849	49	1789	3	7387	135	7088	136	8214	3	30
40	9790	48	9897	48	1792	3	7251	136	6952	136	8211	3	20
50	9839	49	9946	49	1795	3	7116	135	6816	136	8208	3	10
26 0	0.059887	48	0.059995	49	1.001798	3	16.6981	135	16.6681	135	0.998205	3	**34** 0
10	9936	49	0.060043	48	1801	3	6846	135	6546	135	8202	3	50
20	0.059984	48	0092	49	1804	3	6711	135	6411	135	8199	3	40
30	0.060032	48	0141	49	1807	3	6577	134	6277	134	8196	3	30
40	0081	49	0189	48	1810	3	6443	134	6142	135	8194	2	20
50	0129	48	0238	49	1813	3	6309	134	6008	134	8191	3	10
27 0	0.060177	48	0.060287	49	1.001816	3	16.6175	134	16.5874	134	0.998188	3	**33** 0
10	0226	49	0335	48	1819	3	6042	133	5740	134	8185	3	50
20	0274	48	0384	49	1821	2	5908	134	5607	133	8182	3	40
30	0323	49	0433	49	1824	3	5775	133	5473	134	8179	3	30
40	0371	48	0481	48	1827	3	5642	133	5340	133	8176	3	20
50	0419	48	0530	49	1830	3	5510	132	5207	133	8173	3	10
28 0	0.060468	49	0.060579	49	1.001833	3	16.5377	133	16.5075	132	0.998170	3	**32** 0
10	0516	48	0627	48	1836	3	5245	132	4942	133	8167	3	50
20	0565	49	0676	49	1839	3	5113	132	4810	132	8164	3	40
30	0613	48	0725	49	1842	3	4981	132	4678	132	8161	3	30
40	0661	48	0773	48	1845	3	4849	132	4546	132	8158	3	20
50	0710	49	0822	49	1848	3	4718	131	4414	132	8155	3	10
29 0	0.060758	48	0.060871	49	1.001851	3	16.4587	131	16.4283	131	0.998153	2	**31** 0
10	0807	49	0919	48	1854	3	4456	131	4152	131	8150	3	50
20	0855	48	0968	49	1857	3	4325	131	4021	131	8147	3	40
30	0903	48	1017	49	1860	3	4195	130	3890	131	8144	3	30
40	0952	49	1065	48	1863	3	4064	131	3759	131	8141	3	20
50	1000	48	1114	49	1866	3	3934	130	3629	130	8138	3	10
30 0	0.061049	49	0.061163	49	1.001869	3	16.3804	130	16.3499	130	0.998135	3	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

118	
1	11.8
2	23.6
3	35.4
4	47.2
5	59.0
6	70.8
7	82.6
8	94.4
9	106.2

121	
1	12.1
2	24.2
3	36.3
4	48.4
5	60.5
6	72.6
7	84.7
8	96.8
9	108.9

125	
1	12.5
2	25.0
3	37.5
4	50.0
5	62.5
6	75.0
7	87.5
8	100.0
9	112.5

129	
1	12.9
2	25.8
3	38.7
4	51.6
5	64.5
6	77.4
7	90.3
8	103.2
9	116.1

133	
1	13.3
2	26.6
3	39.9
4	53.2
5	66.5
6	79.8
7	93.1
8	106.4
9	119.7

137	
1	13.7
2	27.4
3	41.1
4	54.8
5	68.5
6	82.2
7	95.9
8	109.6
9	123.3

141	
1	14.1
2	28.2
3	42.3
4	56.4
5	70.5
6	84.6
7	98.7
8	112.8
9	126.9

86°

3°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.061049		0.061163		1.001869		16.3804		16.3499		0.998135		**30′** 0″
10	1097	48	1211	48	1872	3	3674	130	3369	130	8132	3	50
20	1145	48	1260	49	1875	3	3545	129	3239	130	8129	3	40
30	1194	49	1309	49	1878	3	3415	130	3109	130	8126	3	30
40	1242	48	1357	48	1881	3	3286	129	2980	129	8123	3	20
50	1290	48	1406	49	1884	3	3157	129	2851	129	8120	3	10
31 0	0.061339	49	0.061455	49	1.001887	3	16.3029	128	16.2722	129	0.998117	3	**29** 0
10	1387	48	1503	48	1890	3	2900	129	2593	129	8114	3	50
20	1436	49	1552	49	1893	3	2772	128	2464	129	8111	3	40
30	1484	48	1601	49	1896	3	2644	128	2336	128	8108	3	30
40	1532	48	1649	48	1899	3	2516	128	2208	128	8105	3	20
50	1581	49	1698	49	1902	3	2388	128	2080	128	8102	3	10
32 0	0.061629	48	0.061747	49	1.001905	3	16.2261	127	16.1952	128	0.998099	3	**28** 0
10	1678	49	1795	48	1908	3	2133	128	1825	127	8096	3	50
20	1726	48	1844	49	1911	3	2006	127	1697	128	8093	3	40
30	1774	48	1893	49	1914	3	1879	127	1570	127	8090	3	30
40	1823	49	1941	48	1917	3	1753	126	1443	127	8087	3	20
50	1871	48	1990	49	1920	3	1626	127	1317	126	8084	3	10
33 0	0.061920	49	0.062039	49	1.001923	3	16.1500	126	16.1190	127	0.998081	3	**27** 0
10	1968	48	2087	48	1926	3	1374	126	1064	126	8078	3	50
20	2016	48	2136	49	1929	3	1248	126	0937	127	8075	3	40
30	2065	49	2185	49	1932	3	1122	126	0812	125	8072	3	30
40	2113	48	2233	48	1935	3	0997	125	0686	126	8069	3	20
50	2161	48	2282	49	1938	3	0871	126	0560	126	8066	3	10
34 0	0.062210	49	0.062331	49	1.001941	3	16.0746	125	16.0435	125	0.998063	3	**26** 0
10	2258	48	2379	48	1944	3	0621	125	0310	125	8060	3	50
20	2307	49	2428	49	1947	3	0496	125	0185	125	8057	3	40
30	2355	48	2477	49	1950	3	0372	124	16.0060	125	8054	3	30
40	2403	48	2525	48	1953	3	0248	124	15.9935	125	8051	3	20
50	2452	49	2574	49	1956	3	16.0123	125	9811	124	8048	3	10
35 0	0.062500	48	0.062623	49	1.001959	3	15.9999	124	15.9687	124	0.998045	3	**25** 0
10	2549	49	2671	48	1962	3	9876	123	9563	124	8042	3	50
20	2597	48	2720	49	1965	3	9752	124	9439	124	8039	3	40
30	2645	48	2769	49	1968	3	9629	123	9315	124	8036	3	30
40	2694	49	2817	48	1971	3	9506	123	9192	123	8033	3	20
50	2742	48	2866	49	1974	3	9383	123	9069	123	8030	3	10
36 0	0.062791	49	0.062915	49	1.001977	3	15.9260	123	15.8945	124	0.998027	3	**24** 0
10	2839	48	2963	48	1980	3	9137	123	8823	122	8024	3	50
20	2887	48	3012	49	1983	3	9015	122	8700	123	8021	3	40
30	2936	49	3061	49	1986	3	8892	123	8577	123	8018	3	30
40	2984	48	3109	48	1989	3	8770	122	8455	122	8015	3	20
50	3032	48	3158	49	1992	3	8648	122	8333	122	8011	4	10
37 0	0.063081	49	0.063207	49	1.001996	4	15.8527	121	15.8211	122	0.998008	3	**23** 0
10	3129	48	3255	48	1999	3	8405	122	8089	122	8005	3	50
20	3178	49	3304	49	2002	3	8284	121	7968	121	8002	3	40
30	3226	48	3353	49	2005	3	8163	121	7846	122	7999	3	30
40	3274	48	3401	48	2008	3	8042	121	7725	121	7996	3	20
50	3323	49	3450	49	2011	3	7921	121	7604	121	7993	3	10
38 0	0.063371	48	0.063499	49	1.002014	3	15.7801	120	15.7483	121	0.997990	3	**22** 0
10	3420	49	3547	48	2017	3	7680	121	7363	120	7987	3	50
20	3468	48	3596	49	2020	3	7560	120	7242	121	7984	3	40
30	3516	48	3645	49	2023	3	7440	120	7122	120	7981	3	30
40	3565	49	3693	48	2026	3	7320	120	7002	120	7978	3	20
50	3613	48	3742	49	2029	3	7200	120	6882	120	7975	3	10
39 0	0.063661	48	0.063791	49	1.002033	4	15.7081	119	15.6762	120	0.997972	3	**21** 0
10	3710	49	3840	49	2036	3	6962	119	6643	119	7968	4	50
20	3758	48	3888	48	2039	3	6843	119	6523	120	7965	3	40
30	3807	49	3937	49	2042	3	6724	119	6404	119	7962	3	30
40	3855	48	3986	49	2045	3	6605	119	6285	119	7959	3	20
50	3903	48	4034	48	2048	3	6486	119	6166	119	7956	3	10
40 0	0.063952	49	0.064083	49	1.002051	3	15.6368	118	15.6048	118	0.997953	3	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

119	
1	11.9
2	23.8
3	35.7
4	47.6
5	59.5
6	71.4
7	83.3
8	95.2
9	107.1

123	
1	12.3
2	24.6
3	36.9
4	49.2
5	61.5
6	73.8
7	86.1
8	98.4
9	110.7

127	
1	12.7
2	25.4
3	38.1
4	50.8
5	63.5
6	76.2
7	88.9
8	101.6
9	114.3

131	
1	13.1
2	26.2
3	39.3
4	52.4
5	65.5
6	78.6
7	91.7
8	104.8
9	117.9

135	
1	13.5
2	27.0
3	40.5
4	54.0
5	67.5
6	81.0
7	94.5
8	108.0
9	121.5

139	
1	13.9
2	27.8
3	41.7
4	55.6
5	69.5
6	83.4
7	97.3
8	111.2
9	125.1

143	
1	14.3
2	28.6
3	42.9
4	57.2
5	71.5
6	85.8
7	100.1
8	114.4
9	128.7

3°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.063952		0.064083		1.002051		15.6368		15.6048		0.997953		**20′** 0″
10	4000	48	4132	49	2054	3	6250	118	5929	119	7950	3	50
20	4048	48	4180	48	2057	3	6132	118	5811	118	7947	3	40
30	4097	49	4229	49	2061	4	6014	118	5693	118	7944	3	30
40	4145	48	4278	49	2064	3	5896	118	5575	118	7941	3	20
50	4194	49	4326	48	2067	3	5779	117	5457	118	7937	4	10
41 0	0.064242	48	0.064375	49	1.002070	3	15.5661	118	15.5340	117	0.997934	3	**19** 0
10	4290	48	4424	49	2073	3	5544	117	5222	118	7931	3	50
20	4339	49	4472	48	2076	3	5427	117	5105	117	7928	3	40
30	4387	48	4521	49	2079	3	5310	117	4988	117	7925	3	30
40	4436	49	4570	49	2082	3	5194	116	4871	117	7922	3	20
50	4484	48	4618	48	2086	4	5077	117	4755	116	7919	3	10
42 0	0.064532	48	0.064667	49	1.002089	3	15.4961	116	15.4638	117	0.997916	3	**18** 0
10	4581	49	4716	49	2092	3	4845	116	4522	116	7912	4	50
20	4629	48	4764	48	2095	3	4729	116	4406	116	7909	3	40
30	4677	48	4813	49	2098	3	4613	116	4290	116	7906	3	30
40	4726	49	4862	49	2101	3	4498	115	4174	116	7903	3	20
50	4774	48	4911	49	2104	3	4382	116	4058	116	7900	3	10
43 0	0.064823	49	0.064959	48	1.002108	4	15.4267	115	15.3943	115	0.997897	3	**17** 0
10	4871	48	5008	49	2111	3	4152	115	3827	116	7894	3	50
20	4919	48	5057	49	2114	3	4037	115	3712	115	7891	3	40
30	4968	49	5105	48	2117	3	3923	114	3597	115	7887	4	30
40	5016	48	5154	49	2120	3	3808	115	3483	114	7884	3	20
50	5064	48	5203	49	2123	3	3694	114	3368	115	7881	3	10
44 0	0.065113	49	0.065251	48	1.002127	4	15.3579	115	15.3254	114	0.997878	3	**16** 0
10	5161	48	5300	49	2130	3	3465	114	3139	115	7875	3	50
20	5210	49	5349	49	2133	3	3352	113	3025	114	7872	3	40
30	5258	48	5397	48	2136	3	3238	114	2911	114	7868	4	30
40	5306	48	5446	49	2139	3	3124	114	2798	113	7865	3	20
50	5355	49	5495	49	2142	3	3011	113	2684	114	7862	3	10
45 0	0.065403	48	0.065543	48	1.002146	4	15.2898	113	15.2571	113	0.997859	3	**15** 0
10	5452	49	5592	49	2149	3	2785	113	2457	114	7856	3	50
20	5500	48	5641	49	2152	3	2672	113	2344	113	7853	3	40
30	5548	48	5690	49	2155	3	2559	113	2231	113	7849	4	30
40	5597	49	5738	48	2158	3	2447	112	2118	113	7846	3	20
50	5645	48	5787	49	2162	4	2334	113	2006	112	7843	3	10
46 0	0.065693	48	0.065836	49	1.002165	3	15.2222	112	15.1893	113	0.997840	3	**14** 0
10	5742	49	5884	48	2168	3	2110	112	1781	112	7837	3	50
20	5790	48	5933	49	2171	3	1998	112	1669	112	7833	4	40
30	5839	49	5982	49	2174	3	1887	111	1557	112	7830	3	30
40	5887	48	6030	48	2178	4	1775	112	1445	112	7827	3	20
50	5935	48	6079	49	2181	3	1664	111	1334	111	7824	3	10
47 0	0.065984	49	0.066128	49	1.002184	3	15.1553	111	15.1222	112	0.997821	3	**13** 0
10	6032	48	6176	48	2187	3	1442	111	1111	111	7818	3	50
20	6080	48	6225	49	2190	3	1331	111	1000	111	7814	4	40
30	6129	49	6274	49	2194	4	1220	111	0889	111	7811	3	30
40	6177	48	6323	49	2197	3	1110	110	0778	111	7808	3	20
50	6226	49	6371	48	2200	3	0999	111	0668	110	7805	3	10
48 0	0.066274	48	0.066420	49	1.002203	3	15.0889	110	15.0557	111	0.997801	4	**12** 0
10	6322	48	6469	49	2207	4	0779	110	0447	110	7798	3	50
20	6371	49	6517	48	2210	3	0669	110	0337	110	7795	3	40
30	6419	48	6566	49	2213	3	0559	110	0227	110	7792	3	30
40	6467	48	6615	49	2216	3	0450	109	0117	110	7789	3	20
50	6516	49	6663	48	2220	4	0340	110	15.0007	110	7785	4	10
49 0	0.066564	48	0.066712	49	1.002223	3	15.0231	109	14.9898	109	0.997782	3	**11** 0
10	6613	49	6761	49	2226	3	0122	109	9788	110	7779	3	50
20	6661	48	6809	48	2229	3	15.0013	109	9679	109	7776	3	40
30	6709	48	6858	49	2233	4	14.9904	109	9570	109	7772	4	30
40	6758	49	6907	49	2236	3	9796	108	9461	109	7769	3	20
50	6806	48	6956	49	2239	3	9687	109	9353	108	7766	3	10
50 0	0.066854	48	0.067004	48	1.002242	3	14.9579	108	14.9244	109	0.997763	3	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

99

1	9.9
2	19.8
3	29.7
4	39.6
5	49.5
6	59.4
7	69.3
8	79.2
9	89.1

101

1	10.1
2	20.2
3	30.3
4	40.4
5	50.5
6	60.6
7	70.7
8	80.8
9	90.9

103

1	10.3
2	20.6
3	30.9
4	41.2
5	51.5
6	61.8
7	72.1
8	82.4
9	92.7

105

1	10.5
2	21.0
3	31.5
4	42.0
5	52.5
6	63.0
7	73.5
8	84.0
9	94.5

109

1	10.9
2	21.8
3	32.7
4	43.6
5	54.5
6	65.4
7	76.3
8	87.2
9	98.1

113

1	11.3
2	22.6
3	33.9
4	45.2
5	56.5
6	67.8
7	79.1
8	90.4
9	101.7

117

1	11.7
2	23.4
3	35.1
4	46.8
5	58.5
6	70.2
7	81.9
8	93.6
9	105.3

3°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.066854		0.067004		1.002242		14.9579		14.9244		0.997763		**10′** 0″
10	6903	49	7053	49	2246	4	9471	108	9136	108	7760	3	50
20	6951	48	7102	49	2249	3	9363	108	9028	108	7756	4	40
30	7000	49	7150	48	2252	3	9255	108	8919	109	7753	3	30
40	7048	48	7199	49	2255	3	9147	108	8812	107	7750	3	20
50	7096	48	7248	49	2259	4	9040	107	8704	108	7747	3	10
51 0	0.067145	49	0.067296	48	1.002262	3	14.8932	108	14.8596	108	0.997743	4	**9** 0
10	7193	48	7345	49	2265	3	8825	107	8489	107	7740	3	50
20	7241	48	7394	49	2268	3	8718	107	8381	108	7737	3	40
30	7290	49	7443	49	2272	4	8611	107	8274	107	7733	4	30
40	7338	48	7491	48	2275	3	8504	107	8167	107	7730	3	20
50	7386	48	7540	49	2278	3	8398	106	8060	107	7727	3	10
52 0	0.067435	49	0.067589	49	1.002282	4	14.8291	107	14.7954	106	0.997724	3	**8** 0
10	7483	48	7637	48	2285	3	8185	106	7847	107	7720	4	50
20	7532	49	7686	49	2288	3	8079	106	7741	106	7717	3	40
30	7580	48	7735	49	2291	3	7973	106	7635	106	7714	3	30
40	7628	48	7784	49	2295	4	7867	106	7528	107	7711	3	20
50	7677	49	7832	48	2298	3	7761	106	7423	105	7707	4	10
53 0	0.067725	48	0.067881	49	1.002301	3	14.7656	105	14.7317	106	0.997704	3	**7** 0
10	7773	48	7930	49	2305	4	7550	106	7211	106	7701	3	50
20	7822	49	7978	48	2308	3	7445	105	7106	105	7697	4	40
30	7870	48	8027	49	2311	3	7340	105	7000	106	7694	3	30
40	7919	49	8076	49	2314	3	7235	105	6895	105	7691	3	20
50	7967	48	8124	48	2318	4	7130	105	6790	105	7688	3	10
54 0	0.068015	48	0.068173	49	1.002321	3	14.7026	104	14.6685	105	0.997684	4	**6** 0
10	8064	49	8222	49	2324	3	6921	105	6581	104	7681	3	50
20	8112	48	8271	49	2328	4	6817	104	6476	105	7678	3	40
30	8160	48	8319	48	2331	3	6713	104	6372	104	7674	4	30
40	8209	49	8368	49	2334	3	6609	104	6267	105	7671	3	20
50	8257	48	8417	49	2338	4	6505	104	6163	104	7668	3	10
55 0	0.068306	49	0.068465	48	1.002341	3	14.6401	104	14.6059	104	0.997664	4	**5** 0
10	8354	48	8514	49	2344	3	6297	104	5955	104	7661	3	50
20	8402	48	8563	49	2348	4	6194	103	5852	103	7658	3	40
30	8451	49	8612	49	2351	3	6091	103	5748	104	7655	3	30
40	8499	48	8660	48	2354	3	5988	103	5645	103	7651	4	20
50	8547	48	8709	49	2358	4	5885	103	5541	104	7648	3	10
56 0	0.068596	49	0.068758	49	1.002361	3	14.5782	103	14.5438	103	0.997645	3	**4** 0
10	8644	48	8806	48	2364	3	5679	103	5335	103	7641	4	50
20	8692	48	8855	49	2368	4	5576	103	5233	102	7638	3	40
30	8741	49	8904	49	2371	3	5474	102	5130	103	7635	3	30
40	8789	48	8953	49	2374	3	5372	102	5027	103	7631	4	20
50	8838	49	9001	48	2378	4	5270	102	4925	102	7628	3	10
57 0	0.068886	48	0.069050	49	1.002381	3	14.5168	102	14.4823	102	0.997625	3	**3** 0
10	8934	48	9099	49	2384	3	5066	102	4721	102	7621	4	50
20	8983	49	9147	48	2388	4	4964	102	4619	102	7618	3	40
30	9031	48	9196	49	2391	3	4862	102	4517	102	7615	3	30
40	9079	48	9245	49	2395	4	4761	101	4415	102	7611	4	20
50	9128	49	9294	49	2398	3	4660	101	4314	101	7608	3	10
58 0	0.069176	48	0.069342	48	1.002401	3	14.4559	101	14.4212	102	0.997604	4	**2** 0
10	9224	48	9391	49	2405	4	4458	101	4111	101	7601	3	50
20	9273	49	9440	49	2408	3	4357	101	4010	101	7598	3	40
30	9321	48	9488	48	2411	3	4256	101	3909	101	7594	4	30
40	9370	49	9537	49	2415	4	4155	101	3808	101	7591	3	20
50	9418	48	9586	49	2418	3	4055	100	3707	101	7588	3	10
59 0	0.069466	48	0.069635	49	1.002422	4	14.3955	100	14.3607	100	0.997584	4	**1** 0
10	9515	49	9683	48	2425	3	3855	100	3507	100	7581	3	50
20	9563	48	9732	49	2428	3	3755	100	3406	101	7578	3	40
30	9611	48	9781	49	2432	4	3655	100	3306	100	7574	4	30
40	9660	49	9829	48	2435	3	3555	100	3206	100	7571	3	20
50	9708	48	9878	49	2439	4	3455	100	3106	100	7567	4	10
60 0	0.069756	48	0.069927	49	1.002442	3	14.3356	99	14.3007	99	0.997564	3	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49		100		102		104		107		111		115		119	
1	4.9	1	10.0	1	10.2	1	10.4	1	10.7	1	11.1	1	11.5	1	11.9
2	9.8	2	20.0	2	20.4	2	20.8	2	21.4	2	22.2	2	23.0	2	23.8
3	14.7	3	30.0	3	30.6	3	31.2	3	32.1	3	33.3	3	34.5	3	35.7
4	19.6	4	40.0	4	40.8	4	41.6	4	42.8	4	44.4	4	46.0	4	47.6
5	24.5	5	50.0	5	51.0	5	52.0	5	53.5	5	55.5	5	57.5	5	59.5
6	29.4	6	60.0	6	61.2	6	62.4	6	64.2	6	66.6	6	69.0	6	71.4
7	34.3	7	70.0	7	71.4	7	72.8	7	74.9	7	77.7	7	80.5	7	83.3
8	39.2	8	80.0	8	81.6	8	83.2	8	85.6	8	88.8	8	92.0	8	95.2
9	44.1	9	90.0	9	91.8	9	93.6	9	96.3	9	99.9	9	103.5	9	107.1

86°

4°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.069756		0.069927		1.002442		14.3356		14.3007		0.997564		**60′** 0″
10	9805	49	0.069976	49	2445	3	3257	99	2907	100	7561	3	50
20	9853	48	0.070024	48	2449	4	3157	100	2808	99	7557	4	40
30	9902	49	0073	49	2452	3	3058	99	2708	100	7554	3	30
40	9950	48	0122	49	2456	4	2959	99	2609	99	7551	3	20
50	0.069998	48	0170	48	2459	3	2861	98	2510	99	7547	4	10
1 0	0.070047	49	0.070219	49	1.002462	3	14.2762	99	14.2411	99	0.997544	3	**59** 0
10	0095	48	0268	49	2466	4	2664	98	2313	98	7540	4	50
20	0143	48	0317	49	2469	3	2565	99	2214	99	7537	3	40
30	0192	49	0365	48	2473	4	2467	98	2116	98	7534	3	30
40	0240	48	0414	49	2476	3	2369	98	2017	99	7530	4	20
50	0288	48	0463	49	2479	3	2271	98	1919	98	7527	3	10
2 0	0.070337	49	0.070511	48	1.002483	4	14.2173	98	14.1821	98	0.997523	4	**58** 0
10	0385	48	0560	49	2486	3	2075	98	1723	98	7520	3	50
20	0434	49	0609	49	2490	4	1978	97	1625	98	7516	4	40
30	0482	48	0658	49	2493	3	1880	98	1528	97	7513	3	30
40	0530	48	0706	48	2497	4	1783	97	1430	98	7510	3	20
50	0579	49	0755	49	2500	3	1686	97	1333	97	7506	4	10
3 0	0.070627	48	0.070804	49	1.002503	3	14.1589	97	14.1235	98	0.997503	3	**57** 0
10	0675	48	0853	49	2507	4	1492	97	1138	97	7499	4	50
20	0724	49	0901	48	2510	3	1395	97	1041	97	7496	3	40
30	0772	48	0950	49	2514	4	1299	96	0944	97	7493	3	30
40	0820	48	0999	49	2517	3	1202	97	0848	96	7489	4	20
50	0869	49	1047	48	2521	4	1106	96	0751	97	7486	3	10
4 0	0.070917	48	0.071096	49	1.002524	3	14.1010	96	14.0655	96	0.997482	4	**56** 0
10	0966	49	1145	49	2528	4	0914	96	0558	97	7479	3	50
20	1014	48	1194	49	2531	3	0818	96	0462	96	7475	4	40
30	1062	48	1242	48	2535	4	0722	96	0366	96	7472	3	30
40	1111	49	1291	49	2538	3	0626	96	0270	96	7468	4	20
50	1159	48	1340	49	2541	3	0530	96	0174	96	7465	3	10
5 0	0.071207	48	0.071389	49	1.002545	4	14.0435	95	14.0079	95	0.997462	3	**55** 0
10	1256	49	1437	48	2548	3	0340	95	13.9983	96	7458	4	50
20	1304	48	1486	49	2552	4	0245	95	9888	95	7455	3	40
30	1352	48	1535	49	2555	3	0150	95	9792	96	7451	4	30
40	1401	49	1583	48	2559	4	14.0055	95	9697	95	7448	3	20
50	1449	48	1632	49	2562	3	13.9960	95	9602	95	7444	4	10
6 0	0.071497	48	0.071681	49	1.002566	4	13.9865	95	13.9507	95	0.997441	3	**54** 0
10	1546	49	1730	49	2569	3	9771	94	9412	95	7437	4	50
20	1594	48	1778	48	2573	4	9676	95	9318	94	7434	3	40
30	1643	49	1827	49	2576	3	9582	94	9223	95	7430	4	30
40	1691	48	1876	49	2580	4	9488	94	9129	94	7427	3	20
50	1739	48	1925	49	2583	3	9394	94	9035	94	7423	4	10
7 0	0.071788	49	0.071973	48	1.002587	4	13.9300	94	13.8940	95	0.997420	3	**53** 0
10	1836	48	2022	49	2590	3	9206	94	8846	94	7416	4	50
20	1884	48	2071	49	2594	4	9112	94	8753	93	7413	3	40
30	1933	49	2119	48	2597	3	9019	93	8659	94	7409	4	30
40	1981	48	2168	49	2601	4	8926	93	8565	94	7406	3	20
50	2029	48	2217	49	2604	3	8832	94	8472	93	7403	3	10
8 0	0.072078	49	0.072266	49	1.002608	4	13.8739	93	13.8378	94	0.997399	4	**52** 0
10	2126	48	2314	48	2611	3	8646	93	8285	93	7396	3	50
20	2174	48	2363	49	2615	4	8553	93	8192	93	7392	4	40
30	2223	49	2412	49	2618	3	8460	93	8099	93	7389	3	30
40	2271	48	2461	49	2622	4	8368	92	8006	93	7385	4	20
50	2319	48	2509	48	2625	3	8275	93	7913	93	7382	3	10
9 0	0.072368	49	0.072558	49	1.002629	4	13.8183	92	13.7821	92	0.997378	4	**51** 0
10	2416	48	2607	49	2632	3	8091	92	7728	93	7375	3	50
20	2465	49	2656	49	2636	4	7998	93	7636	92	7371	4	40
30	2513	48	2704	48	2639	3	7906	92	7543	93	7367	4	30
40	2561	48	2753	49	2643	4	7815	91	7451	92	7364	3	20
50	2610	49	2802	49	2647	4	7723	92	7359	92	7360	4	10
10 0	0.072658	48	0.072851	49	1.002650	3	13.7631	92	13.7267	92	0.997357	3	**50** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

85

1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

87

1	8.7
2	17.4
3	26.1
4	34.8
5	43.5
6	52.2
7	60.9
8	69.6
9	78.3

89

1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

91

1	9.1
2	18.2
3	27.3
4	36.4
5	45.5
6	54.6
7	63.7
8	72.8
9	81.9

93

1	9.3
2	18.6
3	27.9
4	37.2
5	46.5
6	55.8
7	65.1
8	74.4
9	83.7

95

1	9.5
2	19.0
3	28.5
4	38.0
5	47.5
6	57.0
7	66.5
8	76.0
9	85.5

98

1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2

85°

4°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.072658	48	0.072851	48	1.002650	4	13.7631	91	13.7267	91	0.997357	4	**50′** 0″
10	2706	48	2899	48	2654	3	7540	92	7176	92	7353	3	50
20	2755	49	2948	49	2657	4	7448	91	7084	92	7350	4	40
30	2803	48	2997	49	2661	3	7357	91	6992	91	7346	3	30
40	2851	48	3045	48	2664	4	7266	91	6901	91	7343	4	20
50	2900	49	3094	49	2668		7175	91	6810	91	7339		10
11 0	0.072948	48	0.073143	49	1.002671	3	13.7084	91	13.6719	91	0.997336	3	**49** 0
10	2996	48	3192	49	2675	4	6993	91	6628	91	7332	4	50
20	3045	49	3240	48	2678	3	6902	91	6537	91	7329	3	40
30	3093	48	3289	49	2682	4	6812	90	6446	91	7325	4	30
40	3141	48	3338	49	2686	4	6721	91	6355	91	7322	3	20
50	3190	49	3387	49	2689	3	6631	90	6265	90	7318	4	10
12 0	0.073238	48	0.073435	48	1.002693	4	13.6541	90	13.6174	91	0.997314	4	**48** 0
10	3287	49	3484	49	2696	3	6451	90	6084	90	7311	3	50
20	3335	48	3533	49	2700	4	6361	90	5994	90	7307	4	40
30	3383	48	3582	49	2703	3	6271	90	5903	91	7304	3	30
40	3432	49	3630	48	2707	4	6181	90	5813	90	7300	4	20
50	3480	48	3679	49	2711	4	6092	89	5724	89	7297	3	10
13 0	0.073528	48	0.073728	49	1.002714	3	13.6002	90	13.5634	90	0.997293	4	**47** 0
10	3577	49	3777	49	2718	4	5913	89	5544	90	7290	3	50
20	3625	48	3825	48	2721	3	5823	90	5455	89	7286	4	40
30	3673	48	3874	49	2725	4	5734	89	5365	90	7282	4	30
40	3722	49	3923	49	2729	4	5645	89	5276	89	7279	3	20
50	3770	48	3972	49	2732	3	5556	89	5187	89	7275	4	10
14 0	0.073818	48	0.074020	48	1.002736	4	13.5468	88	13.5098	89	0.997272	3	**46** 0
10	3867	49	4069	49	2739	3	5379	89	5009	89	7268	4	50
20	3915	48	4118	49	2743	4	5290	89	4920	89	7265	3	40
30	3963	48	4167	49	2747	4	5202	88	4832	88	7261	4	30
40	4012	49	4215	48	2750	3	5114	88	4743	89	7257	4	20
50	4060	48	4264	49	2754	4	5025	89	4655	88	7254	3	10
15 0	0.074108	48	0.074313	49	1.002757	3	13.4937	88	13.4566	89	0.997250	4	**45** 0
10	4157	49	4362	49	2761	4	4849	88	4478	88	7247	3	50
20	4205	48	4410	48	2765	4	4761	88	4390	88	7243	4	40
30	4254	49	4459	49	2768	3	4674	87	4302	88	7239	4	30
40	4302	48	4508	49	2772	4	4586	88	4214	88	7236	3	20
50	4350	48	4557	49	2775	3	4499	87	4126	88	7232	4	10
16 0	0.074399	49	0.074605	48	1.002779	4	13.4411	88	13.4039	87	0.997229	3	**44** 0
10	4447	48	4654	49	2783	4	4324	87	3951	88	7225	4	50
20	4495	48	4703	49	2786	3	4237	87	3864	87	7221	4	40
30	4544	49	4752	49	2790	4	4150	87	3776	88	7218	3	30
40	4592	48	4800	48	2794	4	4063	87	3689	87	7214	4	20
50	4640	48	4849	49	2797	3	3976	87	3602	87	7211	3	10
17 0	0.074689	49	0.074898	49	1.002801	4	13.3889	87	13.3515	87	0.997207	4	**43** 0
10	4737	48	4947	49	2805	4	3803	86	3428	87	7203	4	50
20	4785	48	4995	48	2808	3	3716	87	3342	86	7200	3	40
30	4834	49	5044	49	2812	4	3630	86	3255	87	7196	4	30
40	4882	48	5093	49	2816	4	3543	87	3168	87	7192	4	20
50	4930	48	5142	49	2819	3	3457	86	3082	86	7189	3	10
18 0	0.074979	49	0.075190	48	1.002823	4	13.3371	86	13.2996	86	0.997185	4	**42** 0
10	5027	48	5239	49	2826	3	3285	86	2910	86	7181	4	50
20	5075	48	5288	49	2830	4	3199	86	2823	87	7178	3	40
30	5124	49	5337	49	2834	4	3114	85	2738	85	7174	4	30
40	5172	48	5385	48	2837	3	3028	86	2652	86	7171	3	20
50	5220	48	5434	49	2841	4	2943	85	2566	86	7167	4	10
19 0	0.075269	49	0.075483	49	1.002845	4	13.2857	86	13.2480	86	0.997163	4	**41** 0
10	5317	48	5532	49	2848	3	2772	85	2395	85	7160	3	50
20	5365	48	5580	48	2852	4	2687	85	2309	86	7156	4	40
30	5414	49	5629	49	2856	4	2602	85	2224	85	7152	4	30
40	5462	48	5678	49	2859	3	2517	85	2139	85	7149	3	20
50	5511	49	5727	49	2863	4	2432	85	2054	85	7145	4	10
20 0	0.075559	48	0.075775	48	1.002867	4	13.2347	85	13.1969	85	0.997141	4	**40** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

86	
1	8.6
2	17.2
3	25.8
4	34.4
5	43.0
6	51.6
7	60.2
8	68.8
9	77.4

88	
1	8.8
2	17.6
3	26.4
4	35.2
5	44.0
6	52.8
7	61.6
8	70.4
9	79.2

90	
1	9.0
2	18.0
3	27.0
4	36.0
5	45.0
6	54.0
7	63.0
8	72.0
9	81.0

92	
1	9.2
2	18.4
3	27.6
4	36.8
5	46.0
6	55.2
7	64.4
8	73.6
9	82.8

94	
1	9.4
2	18.8
3	28.2
4	37.6
5	47.0
6	56.4
7	65.8
8	75.2
9	84.6

96	
1	9.6
2	19.2
3	28.8
4	38.4
5	48.0
6	57.6
7	67.2
8	76.8
9	86.4

100	
1	10.0
2	20.0
3	30.0
4	40.0
5	50.0
6	60.0
7	70.0
8	80.0
9	90.0

85°

4°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.075559		0.075775		1.002867		13.2347		13.1969		0.997141		**40′** 0″
10	5607	48	5824	49	2871	4	2263	84	1884	85	7138	3	50
20	5656	49	5873	49	2874	3	2178	85	1799	85	7134	4	40
30	5704	48	5922	49	2878	4	2094	84	1715	84	7130	4	30
40	5752	48	5971	49	2882	4	2009	85	1630	85	7127	3	20
50	5801	49	6019	48	2885	3	1925	84	1546	84	7123	4	10
21 0	0.075849	48	0.076068	49	1.002889	4	13.1841	84	13.1461	85	0.997119	4	**39** 0
10	5897	48	6117	49	2893	4	1757	84	1377	84	7116	3	50
20	5946	49	6166	49	2896	3	1673	84	1293	84	7112	4	40
30	5994	48	6214	48	2900	4	1589	84	1209	84	7108	4	30
40	6042	48	6263	49	2904	4	1506	83	1125	84	7105	3	20
50	6091	49	6312	49	2908	4	1422	84	1041	84	7101	4	10
22 0	0.076139	48	0.076361	49	1.002911	3	13.1339	83	13.0958	83	0.997097	4	**38** 0
10	6187	48	6409	48	2915	4	1255	84	0874	84	7094	3	50
20	6236	49	6458	49	2919	4	1172	83	0791	83	7090	4	40
30	6284	48	6507	49	2922	3	1089	83	0707	84	7086	4	30
40	6332	48	6556	49	2926	4	1006	83	0624	83	7082	4	20
50	6381	49	6604	48	2930	4	0923	83	0541	83	7079	3	10
23 0	0.076429	48	0.076653	49	1.002934	4	13.0840	83	13.0458	83	0.997075	4	**37** 0
10	6477	48	6702	49	2937	3	0758	82	0375	83	7071	4	50
20	6526	49	6751	49	2941	4	0675	83	0292	83	7068	3	40
30	6574	48	6800	49	2945	4	0593	82	0209	83	7064	4	30
40	6622	48	6848	48	2948	3	0510	83	0127	82	7060	4	20
50	6671	49	6897	49	2952	4	0428	82	13.0044	83	7056	4	10
24 0	0.076719	48	0.076946	49	1.002956	4	13.0346	82	12.9962	82	0.997053	3	**36** 0
10	6767	48	6995	49	2960	4	0264	82	9879	83	7049	4	50
20	6816	49	7043	48	2963	3	0182	82	9797	82	7045	4	40
30	6864	48	7092	49	2967	4	0100	82	9715	82	7042	3	30
40	6912	48	7141	49	2971	4	13.0018	82	9633	82	7038	4	20
50	6961	49	7190	49	2975	4	12.9936	82	9551	82	7034	4	10
25 0	0.077009	48	0.077238	48	1.002978	3	12.9855	81	12.9469	82	0.997030	4	**35** 0
10	7057	48	7287	49	2982	4	9773	82	9388	81	7027	3	50
20	7106	49	7336	49	2986	4	9692	81	9306	82	7023	4	40
30	7154	48	7385	49	2990	4	9611	81	9224	82	7019	4	30
40	7202	48	7434	49	2993	3	9530	81	9143	81	7015	4	20
50	7251	49	7482	48	2997	4	9449	81	9062	81	7012	3	10
26 0	0.077299	48	0.077531	49	1.003001	4	12.9368	81	12.8981	81	0.997008	4	**34** 0
10	7347	48	7580	49	3005	4	9287	81	8899	82	7004	4	50
20	7396	49	7629	49	3009	4	9206	81	8819	80	7000	4	40
30	7444	48	7677	48	3012	3	9125	81	8738	81	6997	3	30
40	7492	48	7726	49	3016	4	9045	80	8657	81	6993	4	20
50	7541	49	7775	49	3020	4	8964	81	8576	81	6989	4	10
27 0	0.077589	48	0.077824	49	1.003024	4	12.8884	80	12.8496	80	0.996985	4	**33** 0
10	7637	48	7872	48	3027	3	8804	80	8415	81	6982	3	50
20	7686	49	7921	49	3031	4	8724	80	8335	80	6978	4	40
30	7734	48	7970	49	3035	4	8644	80	8254	81	6974	4	30
40	7782	48	8019	49	3039	4	8564	80	8174	80	6970	4	20
50	7831	49	8068	49	3043	4	8484	80	8094	80	6967	3	10
28 0	0.077879	48	0.078116	48	1.003046	3	12.8404	80	12.8014	80	0.996963	4	**32** 0
10	7927	48	8165	49	3050	4	8325	79	7934	80	6959	4	50
20	7976	49	8214	49	3054	4	8245	80	7854	80	6955	4	40
30	8024	48	8263	49	3058	4	8166	79	7775	79	6951	4	30
40	8072	48	8311	48	3062	4	8086	80	7695	80	6948	3	20
50	8121	49	8360	49	3065	3	8007	79	7616	79	6944	4	10
29 0	0.078169	48	0.078409	49	1.003069	4	12.7928	79	12.7536	80	0.996940	4	**31** 0
10	8217	48	8458	49	3073	4	7849	79	7457	79	6936	4	50
20	8266	49	8507	49	3077	4	7770	79	7378	79	6933	3	40
30	8314	48	8555	48	3081	4	7691	79	7299	79	6929	4	30
40	8362	48	8604	49	3085	4	7612	79	7220	79	6925	4	20
50	8411	49	8653	49	3088	3	7534	78	7141	79	6921	4	10
30 0	0.078459	48	0.078702	49	1.003092	4	12.7455	79	12.7062	79	0.996917	4	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

73

1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

75

1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

77

1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

79

1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

80

1	8.0
2	16.0
3	24.0
4	32.0
5	40.0
6	48.0
7	56.0
8	64.0
9	72.0

82

1	8.2
2	16.4
3	24.6
4	32.8
5	41.0
6	49.2
7	57.4
8	65.6
9	73.8

84

1	8.4
2	16.8
3	25.2
4	33.6
5	42.0
6	50.4
7	58.8
8	67.2
9	75.6

85°

4°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.078459		0.078702		1.003092		12.7455		12.7062		0.996917		**30′** 0″
10	8507	48	8750	48	3096	4	7376	79	6983	79	6914	3	50
20	8556	49	8799	49	3100	4	7298	78	6905	78	6910	4	40
30	8604	48	8848	49	3104	4	7220	78	6826	79	6906	4	30
40	8652	48	8897	49	3108	4	7142	78	6748	78	6902	4	20
50	8701	49	8946	49	3111	3	7064	78	6669	79	6898	4	10
31 0	0.078749	48	0.078994	48	1.003115	4	12.6986	78	12.6591	78	0.996894	4	**29** 0
10	8797	48	9043	49	3119	4	6908	78	6513	78	6891	3	50
20	8846	49	9092	49	3123	4	6830	78	6435	78	6887	4	40
30	8894	48	9141	49	3127	4	6752	78	6357	78	6883	4	30
40	8942	48	9190	49	3131	4	6675	77	6279	78	6879	4	20
50	8991	49	9238	48	3134	3	6597	78	6202	77	6875	4	10
32 0	0.079039	48	0.079287	49	1.003138	4	12.6520	77	12.6124	78	0.996872	3	**28** 0
10	9087	48	9336	49	3142	4	6442	78	6046	78	6868	4	50
20	9136	49	9385	49	3146	4	6365	77	5969	77	6864	4	40
30	9184	48	9433	48	3150	4	6288	77	5892	77	6860	4	30
40	9232	48	9482	49	3154	4	6211	77	5814	78	6856	4	20
50	9281	49	9531	49	3158	4	6134	77	5737	77	6852	4	10
33 0	0.079329	48	0.079580	49	1.003161	3	12.6057	77	12.5660	77	0.996848	4	**27** 0
10	9377	48	9629	49	3165	4	5980	77	5583	77	6845	3	50
20	9426	49	9677	48	3169	4	5904	76	5506	77	6841	4	40
30	9474	48	9726	49	3173	4	5827	77	5429	77	6837	4	30
40	9522	48	9775	49	3177	4	5751	76	5353	76	6833	4	20
50	9571	49	9824	49	3181	4	5674	77	5276	77	6829	4	10
34 0	0.079619	48	0.079873	49	1.003185	4	12.5598	76	12.5199	77	0.996825	4	**26** 0
10	9667	48	9921	48	3189	4	5522	76	5123	76	6822	3	50
20	9716	49	0.079970	49	3193	4	5446	76	5047	76	6818	4	40
30	9764	48	0.080019	49	3196	3	5370	76	4970	77	6814	4	30
40	9812	48	0068	49	3200	4	5294	76	4894	76	6810	4	20
50	9861	49	0117	49	3204	4	5218	76	4818	76	6806	4	10
35 0	0.079909	48	0.080165	48	1.003208	4	12.5142	76	12.4742	76	0.996802	4	**25** 0
10	0.079957	48	0214	49	3212	4	5067	75	4666	76	6798	4	50
20	0.080006	49	0263	49	3216	4	4991	76	4591	75	6794	4	40
30	0054	48	0312	49	3220	4	4916	75	4515	76	6791	3	30
40	0102	48	0360	48	3224	4	4840	76	4439	76	6787	4	20
50	0151	49	0409	49	3228	4	4765	75	4364	75	6783	4	10
36 0	0.080199	48	0.080458	49	1.003232	4	12.4690	75	12.4288	76	0.996779	4	**24** 0
10	0247	48	0507	49	3235	3	4615	75	4213	75	6775	4	50
20	0296	49	0556	49	3239	4	4540	75	4138	75	6771	4	40
30	0344	48	0604	48	3243	4	4465	75	4063	75	6767	4	30
40	0392	48	0653	49	3247	4	4390	75	3988	75	6763	4	20
50	0441	49	0702	49	3251	4	4315	75	3913	75	6759	4	10
37 0	0.080489	48	0.080751	49	1.003255	4	12.4241	74	12.3838	75	0.996756	3	**23** 0
10	0537	48	0800	49	3259	4	4166	75	3763	75	6752	4	50
20	0586	49	0848	48	3263	4	4092	74	3688	75	6748	4	40
30	0634	48	0897	49	3267	4	4017	75	3614	74	6744	4	30
40	0682	48	0946	49	3271	4	3943	74	3539	75	6740	4	20
50	0730	48	0995	49	3275	4	3869	74	3465	74	6736	4	10
38 0	0.080779	49	0.081044	49	1.003279	4	12.3795	74	12.3390	75	0.996732	4	**22** 0
10	0827	48	1092	48	3283	4	3721	74	3316	74	6728	4	50
20	0875	48	1141	49	3287	4	3647	74	3242	74	6724	4	40
30	0924	49	1190	49	3290	3	3573	74	3168	74	6720	4	30
40	0972	48	1239	49	3294	4	3499	74	3094	74	6716	4	20
50	1020	48	1288	49	3298	4	3426	73	3020	74	6712	4	10
39 0	0.081069	49	0.081336	48	1.003302	4	12.3352	74	12.2946	74	0.996709	3	**21** 0
10	1117	48	1385	49	3306	4	3279	73	2872	74	6705	4	50
20	1165	48	1434	49	3310	4	3205	74	2799	73	6701	4	40
30	1214	49	1483	49	3314	4	3132	73	2725	74	6697	4	30
40	1262	48	1532	49	3318	4	3059	73	2652	73	6693	4	20
50	1310	48	1580	48	3322	4	2986	73	2578	74	6689	4	10
40 0	0.081359	49	0.081629	49	1.003326	4	12.2913	73	12.2505	73	0.996685	4	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

74	
1	7.4
2	14.8
3	22.2
4	29.6
5	37.0
6	44.4
7	51.8
8	59.2
9	66.6

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

78	
1	7.8
2	15.6
3	23.4
4	31.2
5	39.0
6	46.8
7	54.6
8	62.4
9	70.2

79	
1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

81	
1	8.1
2	16.2
3	24.3
4	32.4
5	40.5
6	48.6
7	56.7
8	64.8
9	72.9

83	
1	8.3
2	16.6
3	24.9
4	33.2
5	41.5
6	49.8
7	58.1
8	66.4
9	74.7

85	
1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

85°

4°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.081359		0.081629		1.003326		12.2913		12.2505		0.996685		**20′** 0″
10	1407	48	1678	49	3330	4	2840	73	2432	73	6681	4	50
20	1455	48	1727	49	3334	4	2767	73	2359	73	6677	4	40
30	1504	49	1776	49	3338	4	2694	73	2286	73	6673	4	30
40	1552	48	1825	49	3342	4	2621	73	2213	73	6669	4	20
50	1600	48	1873	48	3346	4	2549	72	2140	73	6665	4	10
41 0	0.081649	49	0.081922	49	1.003350	4	12.2476	73	12.2067	73	0.996661	4	**19** 0
10	1697	48	1971	49	3354	4	2404	72	1994	73	6657	4	50
20	1745	48	2020	49	3358	4	2331	73	1922	72	6653	4	40
30	1794	49	2069	49	3362	4	2259	72	1849	73	6649	4	30
40	1842	48	2117	48	3366	4	2187	72	1777	72	6645	4	20
50	1890	48	2166	49	3370	4	2115	72	1705	72	6641	4	10
42 0	0.081939	49	0.082215	49	1.003374	4	12.2043	72	12.1632	73	0.996637	4	**18** 0
10	1987	48	2264	49	3378	4	1971	72	1560	72	6633	4	50
20	2035	48	2313	49	3382	4	1899	72	1488	72	6629	4	40
30	2083	48	2361	48	3386	4	1827	72	1416	72	6625	4	30
40	2132	49	2410	49	3390	4	1756	71	1344	72	6621	4	20
50	2180	48	2459	49	3394	4	1684	72	1272	72	6617	4	10
43 0	0.082228	48	0.082508	49	1.003398	4	12.1612	72	12.1201	71	0.996614	3	**17** 0
10	2277	49	2557	49	3402	4	1541	71	1129	72	6610	4	50
20	2325	48	2605	48	3406	4	1470	71	1057	72	6606	4	40
30	2373	48	2654	49	3410	4	1398	72	0986	71	6602	4	30
40	2422	49	2703	49	3414	4	1327	71	0914	72	6598	4	20
50	2470	48	2752	49	3418	4	1256	71	0843	71	6594	4	10
44 0	0.082518	48	0.082801	49	1.003422	4	12.1185	71	12.0772	71	0.996590	4	**16** 0
10	2567	49	2850	49	3426	4	1114	71	0701	71	6586	4	50
20	2615	48	2898	48	3430	4	1043	71	0630	71	6582	4	40
30	2663	48	2947	49	3434	4	0973	70	0559	71	6578	4	30
40	2712	49	2996	49	3438	4	0902	71	0488	71	6574	4	20
50	2760	48	3045	49	3442	4	0831	71	0417	71	6570	4	10
45 0	0.082808	48	0.083094	49	1.003446	4	12.0761	70	12.0346	71	0.996566	4	**15** 0
10	2857	49	3142	48	3450	4	0691	70	0276	70	6561	5	50
20	2905	48	3191	49	3454	4	0620	71	0205	71	6557	4	40
30	2953	48	3240	49	3458	4	0550	70	0134	71	6553	4	30
40	3001	48	3289	49	3463	5	0480	70	12.0064	70	6549	4	20
50	3050	49	3338	49	3467	4	0410	70	11.9994	70	6545	4	10
46 0	0.083098	48	0.083386	48	1.003471	4	12.0340	70	11.9923	71	0.996541	4	**14** 0
10	3146	48	3435	49	3475	4	0270	70	9853	70	6537	4	50
20	3195	49	3484	49	3479	4	0200	70	9783	70	6533	4	40
30	3243	48	3533	49	3483	4	0130	70	9713	70	6529	4	30
40	3291	48	3582	49	3487	4	12.0060	70	9643	70	6525	4	20
50	3340	49	3631	49	3491	4	11.9991	69	9573	70	6521	4	10
47 0	0.083388	48	0.083679	48	1.003495	4	11.9921	70	11.9504	69	0.996517	4	**13** 0
10	3436	48	3728	49	3499	4	9852	69	9434	70	6513	4	50
20	3485	49	3777	49	3503	4	9783	69	9364	70	6509	4	40
30	3533	48	3826	49	3507	4	9713	70	9295	69	6505	4	30
40	3581	48	3875	49	3511	4	9644	69	9225	70	6501	4	20
50	3630	49	3924	49	3515	4	9575	69	9156	69	6497	4	10
48 0	0.083678	48	0.083972	48	1.003519	4	11.9506	69	11.9087	69	0.996493	4	**12** 0
10	3726	48	4021	49	3524	5	9437	69	9018	69	6489	4	50
20	3774	48	4070	49	3528	4	9368	69	8949	69	6485	4	40
30	3823	49	4119	49	3532	4	9299	69	8879	70	6481	4	30
40	3871	48	4168	49	3536	4	9231	68	8811	68	6477	4	20
50	3919	48	4216	48	3540	4	9162	69	8742	69	6473	4	10
49 0	0.083968	49	0.084265	49	1.003544	4	11.9093	69	11.8673	69	0.996468	5	**11** 0
10	4016	48	4314	49	3548	4	9025	68	8604	69	6464	4	50
20	4064	48	4363	49	3552	4	8957	68	8535	69	6460	4	40
30	4113	49	4412	49	3556	4	8888	69	8467	68	6456	4	30
40	4161	48	4461	49	3560	4	8820	68	8398	69	6452	4	20
50	4209	48	4509	48	3565	5	8752	68	8330	68	6448	4	10
50 0	0.084258	49	0.084558	49	1.003569	4	11.8684	68	11.8262	68	0.996444	4	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

63

1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

65

1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

67

1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

69

1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

70

1	7.0
2	14.0
3	21.0
4	28.0
5	35.0
6	42.0
7	49.0
8	56.0
9	63.0

72

1	7.2
2	14.4
3	21.6
4	28.8
5	36.0
6	43.2
7	50.4
8	57.6
9	64.8

85°

4°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.084258	48	0.084558	49	1.003569	4	11.8684	68	11.8262	69	0.996444	4	**10′** 0″
10	4306	48	4607	49	3573	4	8616	68	8193	68	6440	4	50
20	4354	48	4656	49	3577	4	8548	68	8125	68	6436	4	40
30	4402	49	4705	49	3581	4	8480	68	8057	68	6432	4	30
40	4451	48	4754	48	3585	4	8412	68	7989	68	6428	4	20
50	4499		4802		3589	4	8344		7921		6424	4	10
51 0	0.084547	48	0.084851	49	1.003593	4	11.8277	67	11.7853	68	0.996419	5	**9** 0
10	4596	49	4900	49	3598	5	8209	68	7786	67	6415	4	50
20	4644	48	4949	49	3602	4	8142	67	7718	68	6411	4	40
30	4692	48	4998	49	3606	4	8074	68	7650	68	6407	4	30
40	4741	49	5047	49	3610	4	8007	67	7583	67	6403	4	20
50	4789	48	5095	48	3614	4	7940	67	7515	68	6399	4	10
52 0	0.084837	48	0.085144	49	1.003618	4	11.7873	67	11.7448	67	0.996395	4	**8** 0
10	4886	49	5193	49	3622	4	7806	67	7380	68	6391	4	50
20	4934	48	5242	49	3627	5	7739	67	7313	67	6387	4	40
30	4982	48	5291	49	3631	4	7672	67	7246	67	6382	5	30
40	5030	48	5340	49	3635	4	7605	67	7179	67	6378	4	20
50	5079	49	5388	48	3639	4	7538	67	7112	67	6374	4	10
53 0	0.085127	48	0.085437	49	1.003643	4	11.7471	67	11.7045	67	0.996370	4	**7** 0
10	5175	48	5486	49	3647	4	7405	66	6978	67	6366	4	50
20	5224	49	5535	49	3651	4	7338	67	6911	67	6362	4	40
30	5272	48	5584	49	3656	5	7272	66	6845	66	6358	4	30
40	5320	48	5633	49	3660	4	7205	67	6778	67	6354	4	20
50	5369	49	5681	48	3664	4	7139	66	6711	67	6349	5	10
54 0	0.085417	48	0.085730	49	1.003668	4	11.7073	66	11.6645	66	0.996345	4	**6** 0
10	5465	48	5779	49	3672	4	7007	66	6579	66	6341	4	50
20	5514	49	5828	49	3676	4	6941	66	6512	67	6337	4	40
30	5562	48	5877	49	3681	5	6875	66	6446	66	6333	4	30
40	5610	48	5926	49	3685	4	6809	66	6380	66	6329	4	20
50	5658	48	5974	48	3689	4	6743	66	6314	66	6325	4	10
55 0	0.085707	49	0.086023	49	1.003693	4	11.6677	66	11.6248	66	0.996320	5	**5** 0
10	5755	48	6072	49	3697	4	6611	66	6182	66	6316	4	50
20	5803	48	6121	49	3702	5	6546	65	6116	66	6312	4	40
30	5852	49	6170	49	3706	4	6480	66	6050	66	6308	4	30
40	5900	48	6219	49	3710	4	6414	66	5984	66	6304	4	20
50	5948	48	6267	48	3714	4	6349	65	5919	65	6300	4	10
56 0	0.085997	49	0.086316	49	1.003718	4	11.6284	65	11.5853	66	0.996295	5	**4** 0
10	6045	48	6365	49	3723	5	6218	66	5787	66	6291	4	50
20	6093	48	6414	49	3727	4	6153	65	5722	65	6287	4	40
30	6141	48	6463	49	3731	4	6088	65	5657	65	6283	4	30
40	6190	49	6512	49	3735	4	6023	65	5591	66	6279	4	20
50	6238	48	6561	49	3739	4	5958	65	5526	65	6275	4	10
57 0	0.086286	48	0.086609	48	1.003744	5	11.5893	65	11.5461	65	0.996270	5	**3** 0
10	6335	49	6658	49	3748	4	5828	65	5396	65	6266	4	50
20	6383	48	6707	49	3752	4	5764	64	5331	65	6262	4	40
30	6431	48	6756	49	3756	4	5699	65	5266	65	6258	4	30
40	6480	49	6805	49	3760	4	5634	65	5201	65	6254	4	20
50	6528	48	6854	49	3765	5	5570	64	5136	65	6249	5	10
58 0	0.086576	48	0.086902	48	1.003769	4	11.5505	65	11.5072	64	0.996245	4	**2** 0
10	6624	48	6951	49	3773	4	5441	64	5007	65	6241	4	50
20	6673	49	7000	49	3777	4	5376	65	4942	65	6237	4	40
30	6721	48	7049	49	3782	5	5312	64	4878	64	6233	4	30
40	6769	48	7098	49	3786	4	5248	64	4813	65	6228	5	20
50	6818	49	7147	49	3790	4	5184	64	4749	64	6224	4	10
59 0	0.086866	48	0.087196	48	1.003794	4	11.5120	64	11.4685	64	0.996220	4	**1** 0
10	6914	48	7244	49	3799	5	5056	64	4621	64	6216	4	50
20	6963	49	7293	49	3803	4	4992	64	4556	65	6212	4	40
30	7011	48	7342	49	3807	4	4928	64	4492	64	6207	5	30
40	7059	48	7391	49	3811	4	4864	64	4428	64	6203	4	20
50	7107	48	7440	49	3816	5	4801	63	4364	64	6199	4	10
60 0	0.087156	49	0.087489	49	1.003820	4	11.4737	64	11.4301	63	0.996195	4	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

64	
1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

66	
1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

68	
1	6.8
2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

69	
1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

71	
1	7.1
2	14.2
3	21.3
4	28.4
5	35.5
6	42.6
7	49.7
8	56.8
9	63.9

73	
1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

85°

5°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.087156		0.087489		1.003820		11.4737		11.4301		0.996195		**60′** 0″
10	7204	48	7538	49	3824	4	4674	63	4237	64	6190	5	50
20	7252	48	7586	48	3828	4	4610	64	4173	64	6186	4	40
30	7301	49	7635	49	3833	5	4547	63	4109	64	6182	4	30
40	7349	48	7684	49	3837	4	4483	64	4046	63	6178	4	20
50	7397	48	7733	49	3841	4	4420	63	3982	64	6174	4	10
1 0	0.087446	49	0.087782	49	1.003845	4	11.4357	63	11.3919	63	0.996169	5	**59** 0
10	7494	48	7831	49	3850	5	4294	63	3855	64	6165	4	50
20	7542	48	7879	48	3854	4	4231	63	3792	63	6161	4	40
30	7590	48	7928	49	3858	4	4168	63	3729	63	6157	4	30
40	7639	49	7977	49	3863	5	4105	63	3666	63	6152	5	20
50	7687	48	8026	49	3867	4	4042	63	3603	63	6148	4	10
2 0	0.087735	48	0.088075	49	1.003871	4	11.3979	63	11.3540	63	0.996144	4	**58** 0
10	7784	49	8124	49	3875	4	3917	62	3477	63	6140	4	50
20	7832	48	8173	49	3880	5	3854	63	3414	63	6135	5	40
30	7880	48	8221	48	3884	4	3791	63	3351	63	6131	4	30
40	7928	48	8270	49	3888	4	3729	62	3288	63	6127	4	20
50	7977	49	8319	49	3893	5	3666	63	3226	62	6123	4	10
3 0	0.088025	48	0.088368	49	1.003897	4	11.3604	62	11.3163	63	0.996118	5	**57** 0
10	8073	48	8417	49	3901	4	3542	62	3101	62	6114	4	50
20	8122	49	8466	49	3905	4	3480	62	3038	63	6110	4	40
30	8170	48	8515	49	3910	5	3417	63	2976	62	6105	5	30
40	8218	48	8564	49	3914	4	3355	62	2913	63	6101	4	20
50	8267	49	8612	48	3918	4	3293	62	2851	62	6097	4	10
4 0	0.088315	48	0.088661	49	1.003923	5	11.3231	62	11.2789	62	0.996093	4	**56** 0
10	8363	48	8710	49	3927	4	3169	62	2727	62	6088	5	50
20	8411	48	8759	49	3931	4	3108	61	2665	62	6084	4	40
30	8460	49	8808	49	3936	5	3046	62	2603	62	6080	4	30
40	8508	48	8857	49	3940	4	2984	62	2541	62	6075	5	20
50	8556	48	8906	49	3944	4	2923	61	2479	62	6071	4	10
5 0	0.088605	49	0.088954	48	1.003949	5	11.2861	62	11.2417	62	0.996067	4	**55** 0
10	8653	48	9003	49	3953	4	2800	61	2355	62	6063	4	50
20	8701	48	9052	49	3957	4	2738	62	2294	61	6058	5	40
30	8749	48	9101	49	3962	5	2677	61	2232	62	6054	4	30
40	8798	49	9150	49	3966	4	2616	61	2171	61	6050	4	20
50	8846	48	9199	49	3970	4	2554	62	2109	62	6045	5	10
6 0	0.088894	48	0.089248	49	1.003975	5	11.2493	61	11.2048	61	0.996041	4	**54** 0
10	8943	49	9296	48	3979	4	2432	61	1986	62	6037	4	50
20	8991	48	9345	49	3983	4	2371	61	1925	61	6032	5	40
30	9039	48	9394	49	3988	5	2310	61	1864	61	6028	4	30
40	9087	48	9443	49	3992	4	2249	61	1803	61	6024	4	20
50	9136	49	9492	49	3996	4	2188	61	1742	61	6019	5	10
7 0	0.089184	48	0.089541	49	1.004001	5	11.2128	60	11.1681	61	0.996015	4	**53** 0
10	9232	48	9590	49	4005	4	2067	61	1620	61	6011	4	50
20	9281	49	9639	49	4009	4	2006	61	1559	61	6007	4	40
30	9329	48	9687	48	4014	5	1946	60	1498	61	6002	5	30
40	9377	48	9736	49	4018	4	1885	61	1438	60	5998	4	20
50	9425	48	9785	49	4023	5	1825	60	1377	61	5994	4	10
8 0	0.089474	49	0.089834	49	1.004027	4	11.1765	60	11.1316	61	0.995989	5	**52** 0
10	9522	48	9883	49	4031	4	1704	61	1256	60	5985	4	50
20	9570	48	9932	49	4036	5	1644	60	1195	61	5980	5	40
30	9619	49	0.089981	49	4040	4	1584	60	1135	60	5976	4	30
40	9667	48	0.090030	49	4044	4	1524	60	1075	60	5972	4	20
50	9715	48	0078	48	4049	5	1464	60	1014	61	5967	5	10
9 0	0.089763	48	0.090127	49	1.004053	4	11.1404	60	11.0954	60	0.995963	4	**51** 0
10	9812	49	0176	49	4058	5	1344	60	0894	60	5959	4	50
20	9860	48	0225	49	4062	4	1284	60	0834	60	5954	5	40
30	9908	48	0274	49	4066	4	1224	60	0774	60	5950	4	30
40	0.089957	49	0323	49	4071	5	1165	59	0714	60	5946	4	20
50	0.090005	48	0372	49	4075	4	1105	60	0654	60	5941	5	10
10 0	0.090053	48	0.090421	49	1.004080	5	11.1045	60	11.0594	60	0.995937	4	**50** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

58	
1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

60	
1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

61	
1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

63	
1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

5°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.090053		0.090421		1.004080		11.1045		11.0594		0.995937		**50′** 0″
10	0101	48	0469	48	4084	4	0986	59	0535	59	5933	4	50
20	0150	49	0518	49	4088	4	0927	59	0475	60	5928	5	40
30	0198	48	0567	49	4093	5	0867	60	0415	60	5924	4	30
40	0246	48	0616	49	4097	4	0808	59	0356	59	5919	5	20
50	0295	49	0665	49	4102	5	0749	59	0296	60	5915	4	10
11 0	0.090343	48	0.090714	49	1.004106	4	11.0689	60	11.0237	59	0.995911	4	**49** 0
10	0391	48	0763	49	4110	4	0630	59	0177	60	5906	5	50
20	0439	48	0812	49	4115	5	0571	59	0118	59	5902	4	40
30	0488	49	0860	48	4119	4	0512	59	0059	59	5898	4	30
40	0536	48	0909	49	4124	5	0453	59	11.0000	59	5893	5	20
50	0584	48	0958	49	4128	4	0394	59	10.9941	59	5889	4	10
12 0	0.090633	49	0.091007	49	1.004133	5	11.0336	58	10.9882	59	0.995884	5	**48** 0
10	0681	48	1056	49	4137	4	0277	59	9823	59	5880	4	50
20	0729	48	1105	49	4141	4	0218	59	9764	59	5876	4	40
30	0777	48	1154	49	4146	5	0160	58	9705	59	5871	5	30
40	0826	49	1203	49	4150	4	0101	59	9646	59	5867	4	20
50	0874	48	1252	49	4155	5	11.0042	59	9587	59	5862	5	10
13 0	0.090922	48	0.091300	48	1.004159	4	10.9984	58	10.9529	58	0.995858	4	**47** 0
10	0971	49	1349	49	4164	5	9926	58	9470	59	5854	4	50
20	1019	48	1398	49	4168	4	9867	59	9411	59	5849	5	40
30	1067	48	1447	49	4173	5	9809	58	9353	58	5845	4	30
40	1115	48	1496	49	4177	4	9751	58	9294	59	5840	5	20
50	1164	49	1545	49	4181	4	9693	58	9236	58	5836	4	10
14 0	0.091212	48	0.091594	49	1.004186	5	10.9635	58	10.9178	58	0.995832	4	**46** 0
10	1260	48	1643	49	4190	4	9577	58	9120	58	5827	5	50
20	1309	49	1692	49	4195	5	9519	58	9061	59	5823	4	40
30	1357	48	1740	48	4199	4	9461	58	9003	58	5818	5	30
40	1405	48	1789	49	4204	5	9403	58	8945	58	5814	4	20
50	1453	48	1838	49	4208	4	9345	58	8887	58	5809	5	10
15 0	0.091502	49	0.091887	49	1.004213	5	10.9288	57	10.8829	58	0.995805	4	**45** 0
10	1550	48	1936	49	4217	4	9230	58	8771	58	5800	5	50
20	1598	48	1985	49	4222	5	9172	58	8714	57	5796	4	40
30	1646	48	2034	49	4226	4	9115	57	8656	58	5792	4	30
40	1695	49	2083	49	4231	5	9058	57	8598	58	5787	5	20
50	1743	48	2132	49	4235	4	9000	58	8540	58	5783	4	10
16 0	0.091791	48	0.092180	48	1.004240	5	10.8943	57	10.8483	57	0.995778	5	**44** 0
10	1840	49	2229	49	4244	4	8886	57	8425	58	5774	4	50
20	1888	48	2278	49	4249	5	8828	58	8368	57	5769	5	40
30	1936	48	2327	49	4253	4	8771	57	8311	57	5765	4	30
40	1984	48	2376	49	4258	5	8714	57	8253	58	5760	5	20
50	2033	49	2425	49	4262	4	8657	57	8196	57	5756	4	10
17 0	0.092081	48	0.092474	49	1.004267	5	10.8600	57	10.8139	57	0.995752	4	**43** 0
10	2129	48	2523	49	4271	4	8543	57	8082	57	5747	5	50
20	2177	48	2572	49	4276	5	8486	57	8024	58	5743	4	40
30	2226	49	2621	49	4280	4	8430	56	7967	57	5738	5	30
40	2274	48	2669	48	4285	5	8373	57	7910	57	5734	4	20
50	2322	48	2718	49	4289	4	8316	57	7854	56	5729	5	10
18 0	0.092371	49	0.092767	49	1.004294	5	10.8260	56	10.7797	57	0.995725	4	**42** 0
10	2419	48	2816	49	4298	4	8203	57	7740	57	5720	5	50
20	2467	48	2865	49	4303	5	8147	56	7683	57	5716	4	40
30	2515	48	2914	49	4307	4	8090	57	7627	56	5711	5	30
40	2564	49	2963	49	4312	5	8034	56	7570	57	5707	4	20
50	2612	48	3012	49	4316	4	7977	57	7513	57	5702	5	10
19 0	0.092660	48	0.093061	49	1.004321	5	10.7921	56	10.7457	56	0.995698	4	**41** 0
10	2709	49	3109	48	4325	4	7865	56	7400	57	5693	5	50
20	2757	48	3158	49	4330	5	7809	56	7344	56	5689	4	40
30	2805	48	3207	49	4334	4	7753	56	7288	56	5684	5	30
40	2853	48	3256	49	4339	5	7697	56	7231	57	5680	4	20
50	2902	49	3305	49	4343	4	7641	56	7175	56	5675	5	10
20 0	0.092950	48	0.093354	49	1.004348	5	10.7585	56	10.7119	56	0.995671	4	**40** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

59	
1	5.9
2	11.8
3	17.7
4	23.6
5	29.5
6	35.4
7	41.3
8	47.2
9	53.1

60	
1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

62	
1	6.2
2	12.4
3	18.6
4	24.8
5	31.0
6	37.2
7	43.4
8	49.6
9	55.8

64	
1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

5°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.092950		0.093354		1.004348		10.7585		10.7119		0.995671		**40′** 0″
10	2998	48	3403	49	4353	5	7529	56	7063	56	5666	5	50
20	3046	48	3452	49	4357	4	7473	56	7007	56	5662	4	40
30	3095	49	3501	49	4362	5	7418	55	6951	56	5657	5	30
40	3143	48	3550	49	4366	4	7362	56	6895	56	5653	4	20
50	3191	48	3599	49	4371	5	7306	56	6839	56	5648	5	10
21 0	0.093239	48	0.093647	48	1.004375	4	10.7251	55	10.6783	56	0.995644	4	**39** 0
10	3288	49	3696	49	4380	5	7195	56	6728	55	5639	5	50
20	3336	48	3745	49	4384	4	7140	55	6672	56	5635	4	40
30	3384	48	3794	49	4389	5	7084	56	6616	56	5630	5	30
40	3433	49	3843	49	4394	5	7029	55	6561	55	5626	4	20
50	3481	48	3892	49	4398	4	6974	55	6505	56	5621	5	10
22 0	0.093529	48	0.093941	49	1.004403	5	10.6919	55	10.6450	55	0.995617	4	**38** 0
10	3577	48	3990	49	4407	4	6863	56	6395	55	5612	5	50
20	3626	49	4039	49	4412	5	6808	55	6339	56	5607	5	40
30	3674	48	4088	49	4416	4	6753	55	6284	55	5603	4	30
40	3722	48	4137	49	4421	5	6698	55	6229	55	5598	5	20
50	3770	48	4185	48	4426	5	6643	55	6174	55	5594	4	10
23 0	0.093819	49	0.094234	49	1.004430	4	10.6589	54	10.6118	56	0.995589	5	**37** 0
10	3867	48	4283	49	4435	5	6534	55	6063	55	5585	4	50
20	3915	48	4332	49	4439	4	6479	55	6008	55	5580	5	40
30	3964	49	4381	49	4444	5	6424	55	5953	55	5576	4	30
40	4012	48	4430	49	4449	5	6370	54	5899	54	5571	5	20
50	4060	48	4479	49	4453	4	6315	55	5844	55	5567	4	10
24 0	0.094108	48	0.094528	49	1.004458	5	10.6261	54	10.5789	55	0.995562	5	**36** 0
10	4157	49	4577	49	4462	4	6206	55	5734	55	5557	5	50
20	4205	48	4626	49	4467	5	6152	54	5680	54	5553	4	40
30	4253	48	4675	49	4472	5	6097	55	5625	55	5548	5	30
40	4301	48	4723	48	4476	4	6043	54	5570	55	5544	4	20
50	4350	49	4772	49	4481	5	5989	54	5516	54	5539	5	10
25 0	0.094398	48	0.094821	49	1.004485	4	10.5935	54	10.5462	54	0.995535	4	**35** 0
10	4446	48	4870	49	4490	5	5880	55	5407	55	5530	5	50
20	4494	48	4919	49	4495	5	5826	54	5353	54	5525	5	40
30	4543	49	4968	49	4499	4	5772	54	5299	54	5521	4	30
40	4591	48	5017	49	4504	5	5718	54	5244	55	5516	5	20
50	4639	48	5066	49	4509	5	5664	54	5190	54	5512	4	10
26 0	0.094687	48	0.095115	49	1.004513	4	10.5611	53	10.5136	54	0.995507	5	**34** 0
10	4736	49	5164	49	4518	5	5557	54	5082	54	5502	5	50
20	4784	48	5213	49	4523	5	5503	54	5028	54	5498	4	40
30	4832	48	5262	49	4527	4	5449	54	4974	54	5493	5	30
40	4881	49	5311	49	4532	5	5396	53	4920	54	5489	4	20
50	4929	48	5359	48	4536	4	5342	54	4866	54	5484	5	10
27 0	0.094977	48	0.095408	49	1.004541	5	10.5289	53	10.4813	53	0.995479	5	**33** 0
10	5025	48	5457	49	4546	5	5235	54	4759	54	5475	4	50
20	5074	49	5506	49	4550	4	5182	53	4705	54	5470	5	40
30	5122	48	5555	49	4555	5	5128	54	4652	53	5466	4	30
40	5170	48	5604	49	4560	5	5075	53	4598	54	5461	5	20
50	5218	48	5653	49	4564	4	5022	53	4545	53	5456	5	10
28 0	0.095267	49	0.095702	49	1.004569	5	10.4969	53	10.4491	54	0.995452	4	**32** 0
10	5315	48	5751	49	4574	5	4915	54	4438	53	5447	5	50
20	5363	48	5800	49	4578	4	4862	53	4384	54	5443	4	40
30	5411	48	5849	49	4583	5	4809	53	4331	53	5438	5	30
40	5460	49	5898	49	4588	5	4756	53	4278	53	5433	5	20
50	5508	48	5947	49	4592	4	4703	53	4225	53	5429	4	10
29 0	0.095556	48	0.095995	48	1.004597	5	10.4650	53	10.4172	53	0.995424	5	**31** 0
10	5604	48	6044	49	4602	5	4598	52	4119	53	5419	5	50
20	5653	49	6093	49	4606	4	4545	53	4065	54	5415	4	40
30	5701	48	6142	49	4611	5	4492	53	4013	52	5410	5	30
40	5749	48	6191	49	4616	5	4439	53	3960	53	5405	5	20
50	5797	48	6240	49	4620	4	4387	52	3907	53	5401	4	10
30 0	0.095846	49	0.096289	49	1.004625	5	10.4334	53	10.3854	53	0.995396	5	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

5°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.095846		0.096289		1.004625		10.4334		10.3854		0.995396		**30′** 0″
10	5894	48	6338	49	4630	5	4282	52	3801	53	5392	4	50
20	5942	48	6387	49	4634	4	4229	53	3749	52	5387	5	40
30	5991	49	6436	49	4639	5	4177	52	3696	53	5382	5	30
40	6039	48	6485	49	4644	5	4125	52	3643	53	5378	4	20
50	6087	48	6534	49	4649	5	4072	53	3591	52	5373	5	10
31 0	0.096135	48	0.096583	49	1.004653	4	10.4020	52	10.3538	53	0.995368	5	**29** 0
10	6184	49	6632	49	4658	5	3968	52	3486	52	5364	4	50
20	6232	48	6681	49	4663	5	3916	52	3433	53	5359	5	40
30	6280	48	6729	48	4667	4	3864	52	3381	52	5354	5	30
40	6328	48	6778	49	4672	5	3812	52	3329	52	5350	4	20
50	6377	49	6827	49	4677	5	3760	52	3277	52	5345	5	10
32 0	0.096425	48	0.096876	49	1.004682	5	10.3708	52	10.3224	53	0.995340	5	**28** 0
10	6473	48	6925	49	4686	4	3656	52	3172	52	5336	4	50
20	6521	48	6974	49	4691	5	3604	52	3120	52	5331	5	40
30	6570	49	7023	49	4696	5	3552	52	3068	52	5326	5	30
40	6618	48	7072	49	4700	4	3501	51	3016	52	5322	4	20
50	6666	48	7121	49	4705	5	3449	52	2964	52	5317	5	10
33 0	0.096714	48	0.097170	49	1.004710	5	10.3397	52	10.2913	51	0.995312	5	**27** 0
10	6763	49	7219	49	4715	5	3346	51	2861	52	5307	5	50
20	6811	48	7268	49	4719	4	3294	52	2809	52	5303	4	40
30	6859	48	7317	49	4724	5	3243	51	2757	52	5298	5	30
40	6907	48	7366	49	4729	5	3191	52	2706	51	5293	5	20
50	6956	49	7415	49	4734	5	3140	51	2654	52	5289	4	10
34 0	0.097004	48	0.097464	49	1.004738	4	10.3089	51	10.2602	52	0.995284	5	**26** 0
10	7052	48	7512	48	4743	5	3037	52	2551	51	5279	5	50
20	7100	48	7561	49	4748	5	2986	51	2500	51	5275	4	40
30	7149	49	7610	49	4753	5	2935	51	2448	52	5270	5	30
40	7197	48	7659	49	4757	4	2884	51	2397	51	5265	5	20
50	7245	48	7708	49	4762	5	2833	51	2346	51	5260	5	10
35 0	0.097293	48	0.097757	49	1.004767	5	10.2782	51	10.2294	52	0.995256	4	**25** 0
10	7342	49	7806	49	4772	5	2731	51	2243	51	5251	5	50
20	7390	48	7855	49	4776	4	2680	51	2192	51	5246	5	40
30	7438	48	7904	49	4781	5	2629	51	2141	51	5242	4	30
40	7486	48	7953	49	4786	5	2578	51	2090	51	5237	5	20
50	7535	49	8002	49	4791	5	2528	50	2039	51	5232	5	10
36 0	0.097583	48	0.098051	49	1.004795	4	10.2477	51	10.1988	51	0.995227	5	**24** 0
10	7631	48	8100	49	4800	5	2426	51	1937	51	5223	4	50
20	7679	48	8149	49	4805	5	2376	50	1886	51	5218	5	40
30	7728	49	8198	49	4810	5	2325	51	1835	51	5213	5	30
40	7776	48	8247	49	4815	5	2275	50	1785	50	5208	5	20
50	7824	48	8296	49	4819	4	2224	51	1734	51	5204	4	10
37 0	0.097872	48	0.098345	49	1.004824	5	10.2174	50	10.1683	51	0.995199	5	**23** 0
10	7921	49	8394	49	4829	5	2124	50	1633	50	5194	5	50
20	7969	48	8442	48	4834	5	2073	51	1582	51	5189	5	40
30	8017	48	8491	49	4839	5	2023	50	1532	50	5185	4	30
40	8065	48	8540	49	4843	4	1973	50	1481	51	5180	5	20
50	8114	49	8589	49	4848	5	1923	50	1431	50	5175	5	10
38 0	0.098162	48	0.098638	49	1.004853	5	10.1873	50	10.1381	50	0.995170	5	**22** 0
10	8210	48	8687	49	4858	5	1822	51	1330	51	5166	4	50
20	8258	48	8736	49	4863	5	1772	50	1280	50	5161	5	40
30	8307	49	8785	49	4867	4	1723	49	1230	50	5156	5	30
40	8355	48	8834	49	4872	5	1673	50	1180	50	5151	5	20
50	8403	48	8883	49	4877	5	1623	50	1130	50	5147	4	10
39 0	0.098451	48	0.098932	49	1.004882	5	10.1573	50	10.1080	50	0.995142	5	**21** 0
10	8500	49	8981	49	4887	5	1523	50	1030	50	5137	5	50
20	8548	48	9030	49	4891	4	1474	49	0980	50	5132	5	40
30	8596	48	9079	49	4896	5	1424	50	0930	50	5128	4	30
40	8644	48	9128	49	4901	5	1374	50	0880	50	5123	5	20
50	8693	49	9177	49	4906	5	1325	49	0830	50	5118	5	10
40 0	0.098741	48	0.099226	49	1.004911	5	10.1275	50	10.0780	50	0.995113	5	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

5°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.098741		0.099226		1.004911		10.12752		10.07803		0.995113		**20′** 0″
10	8789	48	9275	49	4916	5	2258	494	7306	497	5108	5	50
20	8837	48	9324	49	4920	4	1764	494	6810	496	5104	4	40
30	8886	49	9373	49	4925	5	1270	494	6314	496	5099	5	30
40	8934	48	9422	49	4930	5	0777	493	5818	496	5094	5	20
50	8982	48	9471	49	4935	5	10.10284	493	5323	495	5089	5	10
41 0	0.099030	48	0.099519	48	1.004940	5	10.09792	492	10.04828	495	0.995084	5	**19** 0
10	9079	49	9568	49	4945	5	9300	492	4334	494	5080	4	50
20	9127	48	9617	49	4950	5	8809	491	3841	493	5075	5	40
30	9175	48	9666	49	4954	4	8318	491	3347	494	5070	5	30
40	9223	48	9715	49	4959	5	7828	490	2855	492	5065	5	20
50	9272	49	9764	49	4964	5	7338	490	2363	492	5060	5	10
42 0	0.099320	48	0.099813	49	1.004969	5	10.06849	489	10.01871	492	0.995056	4	**18** 0
10	9368	48	9862	49	4974	5	6360	489	1380	491	5051	5	50
20	9416	48	9911	49	4979	5	5872	488	0889	491	5046	5	40
30	9464	48	0.099960	49	4984	5	5384	488	10.00399	490	5041	5	30
40	9513	49	0.100009	49	4988	4	4897	487	9.99909	490	5036	5	20
50	9561	48	0058	49	4993	5	4410	487	9419	490	5031	5	10
43 0	0.099609	48	0.100107	49	1.004998	5	10.03923	487	9.98931	488	0.995027	4	**17** 0
10	9657	48	0156	49	5003	5	3437	486	8442	489	5022	5	50
20	9706	49	0205	49	5008	5	2952	485	7954	488	5017	5	40
30	9754	48	0254	49	5013	5	2467	485	7467	487	5012	5	30
40	9802	48	0303	49	5018	5	1982	485	6980	487	5007	5	20
50	9850	48	0352	49	5023	5	1498	484	6493	487	5002	5	10
44 0	0.099899	49	0.100401	49	1.005028	5	10.01015	483	9.96007	486	0.994998	4	**16** 0
10	9947	48	0450	49	5032	4	0532	483	5522	485	4993	5	50
20	0.099995	48	0499	49	5037	5	10.00049	483	5037	485	4988	5	40
30	0.100043	48	0548	49	5042	5	9.99567	482	4552	485	4983	5	30
40	0092	49	0597	49	5047	5	9085	482	4068	484	4978	5	20
50	0140	48	0646	49	5052	5	8604	481	3584	484	4973	5	10
45 0	0.100188	48	0.100695	49	1.005057	5	9.98123	481	9.93101	483	0.994969	4	**15** 0
10	0236	48	0744	49	5062	5	7643	480	2618	483	4964	5	50
20	0285	49	0793	49	5067	5	7163	480	2136	482	4959	5	40
30	0333	48	0842	49	5072	5	6683	480	1654	482	4954	5	30
40	0381	48	0891	49	5077	5	6204	479	1173	481	4949	5	20
50	0429	48	0940	49	5081	4	5726	478	0692	481	4944	5	10
46 0	0.100477	48	0.100989	49	1.005086	5	9.95248	478	9.90211	481	0.994939	5	**14** 0
10	0526	49	1038	49	5091	5	4770	478	9.89731	480	4934	5	50
20	0574	48	1087	49	5096	5	4293	477	9252	479	4930	4	40
30	0622	48	1135	48	5101	5	3817	476	8773	479	4925	5	30
40	0670	48	1184	49	5106	5	3340	477	8294	479	4920	5	20
50	0719	49	1233	49	5111	5	2865	475	7816	478	4915	5	10
47 0	0.100767	48	0.101282	49	1.005116	5	9.92389	476	9.87338	478	0.994910	5	**13** 0
10	0815	48	1331	49	5121	5	1915	474	6861	477	4905	5	50
20	0863	48	1380	49	5126	5	1440	475	6384	477	4900	5	40
30	0912	49	1429	49	5131	5	0966	474	5908	476	4895	5	30
40	0960	48	1478	49	5136	5	0493	473	5432	476	4891	4	20
50	1008	48	1527	49	5141	5	9.90020	473	4957	475	4886	5	10
48 0	0.101056	48	0.101576	49	1.005146	5	9.89547	473	9.84482	475	0.994881	5	**12** 0
10	1105	49	1625	49	5151	5	9075	472	4007	475	4876	5	50
20	1153	48	1674	49	5156	5	8604	471	3533	474	4871	5	40
30	1201	48	1723	49	5160	4	8133	471	3059	474	4866	5	30
40	1249	48	1772	49	5165	5	7662	471	2586	473	4861	5	20
50	1297	48	1821	49	5170	5	7192	470	2114	472	4856	5	10
49 0	0.101346	49	0.101870	49	1.005175	5	9.86722	470	9.81641	473	0.994851	5	**11** 0
10	1394	48	1919	49	5180	5	6252	470	1170	471	4846	5	50
20	1442	48	1968	49	5185	5	5783	469	0698	472	4841	5	40
30	1490	48	2017	49	5190	5	5315	468	9.80227	471	4837	4	30
40	1539	49	2066	49	5195	5	4847	468	9.79757	470	4832	5	20
50	1587	48	2115	49	5200	5	4379	468	9287	470	4827	5	10
50 0	0.101635	48	0.102164	49	1.005205	5	9.83912	467	9.78817	470	0.994822	5	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

442

1	44.2
2	88.4
3	132.6
4	176.8
5	221.0
6	265.2
7	309.4
8	353.6
9	397.8

448

1	44.8
2	89.6
3	134.4
4	179.2
5	224.0
6	268.8
7	313.6
8	358.4
9	403.2

454

1	45.4
2	90.8
3	136.2
4	181.6
5	227.0
6	272.4
7	317.8
8	363.2
9	408.6

460

1	46.0
2	92.0
3	138.0
4	184.0
5	230.0
6	276.0
7	322.0
8	368.0
9	414.0

470

1	47.0
2	94.0
3	141.0
4	188.0
5	235.0
6	282.0
7	329.0
8	376.0
9	423.0

480

1	48.0
2	96.0
3	144.0
4	192.0
5	240.0
6	288.0
7	336.0
8	384.0
9	432.0

490

1	49.0
2	98.0
3	147.0
4	196.0
5	245.0
6	294.0
7	343.0
8	392.0
9	441.0

5°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.101635		0.102164		1.005205		9.83912		9.78817		0.994822		**10′** 0″
10	1683	48	2213	49	5210	5	3446	466	8348	469	4817	5	50
20	1732	49	2262	49	5215	5	2979	467	7880	468	4812	5	40
30	1780	48	2311	49	5220	5	2514	465	7411	469	4807	5	30
40	1828	48	2360	49	5225	5	2048	466	6944	467	4802	5	20
50	1876	48	2409	49	5230	5	1583	465	6476	468	4797	5	10
51 0	0.101924	48	0.102458	49	1.005235	5	9.81119	464	9.76009	467	0.994792	5	**9** 0
10	1973	49	2507	49	5240	5	0655	464	5543	466	4787	5	50
20	2021	48	2556	49	5245	5	9.80191	464	5077	466	4782	5	40
30	2069	48	2605	49	5250	5	9.79728	463	4611	466	4777	5	30
40	2117	48	2654	49	5255	5	9265	463	4146	465	4772	5	20
50	2166	49	2703	49	5260	5	8803	462	3681	465	4767	5	10
52 0	0.102214	48	0.102752	49	1.005265	5	9.78341	462	9.73217	464	0.994762	5	**8** 0
10	2262	48	2801	49	5270	5	7880	461	2753	464	4757	5	50
20	2310	48	2850	49	5275	5	7419	461	2290	463	4753	4	40
30	2359	49	2899	49	5280	5	6958	461	1827	463	4748	5	30
40	2407	48	2948	49	5285	5	6498	460	1364	463	4743	5	20
50	2455	48	2997	49	5290	5	6039	459	0902	462	4738	5	10
53 0	0.102503	48	0.103046	49	1.005295	5	9.75579	460	9.70441	461	0.994733	5	**7** 0
10	2551	48	3095	49	5300	5	5121	458	9.69980	461	4728	5	50
20	2600	49	3144	49	5305	5	4662	459	9519	461	4723	5	40
30	2648	48	3193	49	5310	5	4204	458	9058	461	4718	5	30
40	2696	48	3242	49	5315	5	3747	457	8599	459	4713	5	20
50	2744	48	3291	49	5320	5	3290	457	8139	460	4708	5	10
54 0	0.102793	49	0.103340	49	1.005325	5	9.72833	457	9.67680	459	0.994703	5	**6** 0
10	2841	48	3389	49	5330	5	2377	456	7221	459	4698	5	50
20	2889	48	3438	49	5335	5	1921	456	6763	458	4693	5	40
30	2937	48	3487	49	5341	6	1466	455	6305	458	4688	5	30
40	2985	48	3536	49	5346	5	1011	455	5848	457	4683	5	20
50	3034	49	3585	49	5351	5	0557	454	5391	457	4678	5	10
55 0	0.103082	48	0.103634	49	1.005356	5	9.70103	454	9.64935	456	0.994673	5	**5** 0
10	3130	48	3683	49	5361	5	9.69649	454	4479	456	4668	5	50
20	3178	48	3732	49	5366	5	9196	453	4023	456	4663	5	40
30	3227	49	3781	49	5371	5	8743	453	3568	455	4658	5	30
40	3275	48	3830	49	5376	5	8291	452	3113	455	4653	5	20
50	3323	48	3879	49	5381	5	7839	452	2659	454	4648	5	10
56 0	0.103371	48	0.103928	49	1.005386	5	9.67387	452	9.62205	454	0.994643	5	**4** 0
10	3419	48	3977	49	5391	5	6936	451	1751	454	4638	5	50
20	3468	49	4026	49	5396	5	6486	450	1298	453	4633	5	40
30	3516	48	4075	49	5401	5	6035	451	0846	452	4628	5	30
40	3564	48	4124	49	5406	5	5586	449	9.60393	453	4623	5	20
50	3612	48	4173	49	5411	5	5136	450	9.59942	451	4618	5	10
57 0	0.103661	49	0.104222	49	1.005416	5	9.64687	449	9.59490	452	0.994613	5	**3** 0
10	3709	48	4271	49	5422	6	4239	448	9039	451	4608	5	50
20	3757	48	4320	49	5427	5	3791	448	8589	450	4603	5	40
30	3805	48	4369	49	5432	5	3343	448	8139	450	4598	5	30
40	3853	48	4418	49	5437	5	2896	447	7689	450	4593	5	20
50	3902	49	4467	49	5442	5	2449	447	7240	449	4588	5	10
58 0	0.103950	48	0.104516	49	1.005447	5	9.62002	447	9.56791	449	0.994583	5	**2** 0
10	3998	48	4565	49	5452	5	1556	446	6342	449	4577	6	50
20	4046	48	4614	49	5457	5	1111	445	5894	448	4572	5	40
30	4095	49	4663	49	5462	5	0665	446	5447	447	4567	5	30
40	4143	48	4712	49	5467	5	9.60221	444	4999	448	4562	5	20
50	4191	48	4761	49	5472	5	9.59776	445	4553	446	4557	5	10
59 0	0.104239	48	0.104810	49	1.005478	6	9.59332	444	9.54106	447	0.994552	5	**1** 0
10	4287	48	4859	49	5483	5	8889	443	3660	446	4547	5	50
20	4336	49	4908	49	5488	5	8446	443	3215	445	4542	5	40
30	4384	48	4957	49	5493	5	8003	443	2769	446	4537	5	30
40	4432	48	5006	49	5498	5	7561	442	2325	444	4532	5	20
50	4480	48	5055	49	5503	5	7119	442	1880	445	4527	5	10
60 0	0.104528	48	0.105104	49	1.005508	5	9.56677	442	9.51436	444	0.994522	5	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

445	
1	44.5
2	89.0
3	133.5
4	178.0
5	222.5
6	267.0
7	311.5
8	356.0
9	400.5

451	
1	45.1
2	90.2
3	135.3
4	180.4
5	225.5
6	270.6
7	315.7
8	360.8
9	405.9

457	
1	45.7
2	91.4
3	137.1
4	182.8
5	228.5
6	274.2
7	319.9
8	365.6
9	411.3

465	
1	46.5
2	93.0
3	139.5
4	186.0
5	232.5
6	279.0
7	325.5
8	372.0
9	418.5

475	
1	47.5
2	95.0
3	142.5
4	190.0
5	237.5
6	285.0
7	332.5
8	380.0
9	427.5

485	
1	48.5
2	97.0
3	145.5
4	194.0
5	242.5
6	291.0
7	339.5
8	388.0
9	436.5

495	
1	49.5
2	99.0
3	148.5
4	198.0
5	247.5
6	297.0
7	346.5
8	396.0
9	445.5

84°

6°

0′ 0″	sin		tang		sec		cosec		cotg		cos		60′ 0″
	0.104528		0.105104		1.005508		9.56677		9.51436		0.994522		
10	4577	49	5153	49	5513	5	6236	441	0993	443	4517	5	50
20	4625	48	5202	49	5519	6	5795	441	0550	443	4512	5	40
30	4673	48	5251	49	5524	5	5355	440	9.50107	443	4507	5	30
40	4721	48	5300	49	5529	5	4915	440	9.49665	442	4502	5	20
50	4770	49	5349	49	5534	5	4476	439	9223	442	4497	5	10
1 0	0.104818	48	0.105398	49	1.005539	5	9.54037	439	9.48781	442	0.994491	6	59 0
10	4866	48	5447	49	5544	5	3598	439	8340	441	4486	5	50
20	4914	48	5496	49	5549	5	3160	438	7900	440	4481	5	40
30	4962	48	5545	49	5554	5	2722	438	7460	440	4476	5	30
40	5011	49	5594	49	5560	6	2285	437	7020	440	4471	5	20
50	5059	48	5643	49	5565	5	1848	437	6580	440	4466	5	10
2 0	0.105107	48	0.105692	49	1.005570	5	9.51411	437	9.46141	439	0.994461	5	58 0
10	5155	48	5741	49	5575	5	0975	436	5703	438	4456	5	50
20	5203	48	5791	50	5580	5	0539	436	5264	439	4451	5	40
30	5252	49	5840	49	5585	5	9.50104	435	4826	438	4446	5	30
40	5300	48	5889	49	5591	6	9.49669	435	4389	437	4441	5	20
50	5348	48	5938	49	5596	5	9234	435	3952	437	4435	6	10
3 0	0.105396	48	0.105987	49	1.005601	5	9.48800	434	9.43515	437	0.994430	5	57 0
10	5445	49	6036	49	5606	5	8366	434	3079	436	4425	5	50
20	5493	48	6085	49	5611	5	7933	433	2643	436	4420	5	40
30	5541	48	6134	49	5616	5	7500	433	2208	435	4415	5	30
40	5589	48	6183	49	5622	6	7067	433	1773	435	4410	5	20
50	5637	48	6232	49	5627	5	6635	432	1338	435	4405	5	10
4 0	0.105686	49	0.106281	49	1.005632	5	9.46203	432	9.40904	434	0.994400	5	56 0
10	5734	48	6330	49	5637	5	5772	431	0470	434	4394	6	50
20	5782	48	6379	49	5642	5	5341	431	9.40037	433	4389	5	40
30	5830	48	6428	49	5647	5	4910	431	9.39603	434	4384	5	30
40	5878	48	6477	49	5653	6	4480	430	9171	432	4379	5	20
50	5927	49	6526	49	5658	5	4050	430	8739	432	4374	5	10
5 0	0.105975	48	0.106575	49	1.005663	5	9.43620	430	9.38307	432	0.994369	5	55 0
10	6023	48	6624	49	5668	5	3191	429	7875	432	4364	5	50
20	6071	48	6673	49	5673	5	2763	428	7444	431	4359	5	40
30	6119	48	6722	49	5679	6	2334	429	7013	431	4353	6	30
40	6168	49	6771	49	5684	5	1906	428	6583	430	4348	5	20
50	6216	48	6820	49	5689	5	1479	427	6153	430	4343	5	10
6 0	0.106264	48	0.106869	49	1.005694	5	9.41052	427	9.35724	429	0.994338	5	54 0
10	6312	48	6918	49	5700	6	0625	427	5294	430	4333	5	50
20	6360	48	6967	49	5705	5	9.40199	426	4866	428	4328	5	40
30	6409	49	7016	49	5710	5	9.39773	426	4437	429	4322	6	30
40	6457	48	7065	49	5715	5	9347	426	4009	428	4317	5	20
50	6505	48	7114	49	5720	5	8922	425	3582	427	4312	5	10
7 0	0.106553	48	0.107163	49	1.005726	6	9.38497	425	9.33155	427	0.994307	5	53 0
10	6602	49	7212	49	5731	5	8073	424	2728	427	4302	5	50
20	6650	48	7261	49	5736	5	7649	424	2301	427	4297	5	40
30	6698	48	7311	50	5741	5	7225	424	1875	426	4291	6	30
40	6746	48	7360	49	5747	6	6802	423	1450	425	4286	5	20
50	6794	48	7409	49	5752	5	6379	423	1024	426	4281	5	10
8 0	0.106843	49	0.107458	49	1.005757	5	9.35957	422	9.30599	425	0.994276	5	52 0
10	6891	48	7507	49	5762	5	5535	422	9.30175	424	4271	5	50
20	6939	48	7556	49	5767	5	5113	422	9.29751	424	4266	5	40
30	6987	48	7605	49	5773	6	4692	421	9327	424	4260	6	30
40	7035	48	7654	49	5778	5	4271	421	8904	423	4255	5	20
50	7084	49	7703	49	5783	5	3850	421	8481	423	4250	5	10
9 0	0.107132	48	0.107752	49	1.005788	5	9.33430	420	9.28058	423	0.994245	5	51 0
10	7180	48	7801	49	5794	6	3010	420	7636	422	4240	5	50
20	7228	48	7850	49	5799	5	2591	419	7214	422	4234	6	40
30	7276	48	7899	49	5804	5	2172	419	6792	422	4229	5	30
40	7325	49	7948	49	5810	6	1753	419	6371	421	4224	5	20
50	7373	48	7997	49	5815	5	1335	418	5951	420	4219	5	10
10 0	0.107421	48	0.108046	49	1.005820	5	9.30917	418	9.25530	421	0.994214	5	50 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

399

1	39.9
2	79.8
3	119.7
4	159.6
5	199.5
6	239.4
7	279.3
8	319.2
9	359.1

405

1	40.5
2	81.0
3	121.5
4	162.0
5	202.5
6	243.0
7	283.5
8	324.0
9	364.5

411

1	41.1
2	82.2
3	123.3
4	164.4
5	205.5
6	246.6
7	287.7
8	328.8
9	369.9

420

1	42.0
2	84.0
3	126.0
4	168.0
5	210.0
6	252.0
7	294.0
8	336.0
9	378.0

430

1	43.0
2	86.0
3	129.0
4	172.0
5	215.0
6	258.0
7	301.0
8	344.0
9	387.0

440

1	44.0
2	88.0
3	132.0
4	176.0
5	220.0
6	264.0
7	308.0
8	352.0
9	396.0

83°

6°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.107421		0.108046		1.005820		9.30917		9.25530		0.994214		**50′** 0″
10	7469	48	8095	49	5825	5	0499	418	5110	420	4208	6	50
20	7517	48	8144	49	5831	6	9.30082	417	4691	419	4203	5	40
30	7566	49	8193	49	5836	5	9.29666	416	4272	419	4198	5	30
40	7614	48	8242	49	5841	5	9249	417	3853	419	4193	5	20
50	7662	48	8291	49	5846	5	8833	416	3434	419	4188	5	10
11 0	0.107710	48	0.108340	49	1.005852	6	9.28417	416	9.23016	418	0.994182	6	**49** 0
10	7758	48	8390	50	5857	5	8002	415	2599	417	4177	5	50
20	7807	49	8439	49	5862	5	7587	415	2181	418	4172	5	40
30	7855	48	8488	49	5868	6	7173	414	1764	417	4167	5	30
40	7903	48	8537	49	5873	5	6759	414	1348	416	4161	6	20
50	7951	48	8586	49	5878	5	6345	414	0931	417	4156	5	10
12 0	0.107999	48	0.108635	49	1.005883	5	9.25931	414	9.20516	415	0.994151	5	**48** 0
10	8048	49	8684	49	5889	6	5518	413	9.20100	416	4146	5	50
20	8096	48	8733	49	5894	5	5106	412	9.19685	415	4140	6	40
30	8144	48	8782	49	5899	5	4693	413	9270	415	4135	5	30
40	8192	48	8831	49	5905	6	4282	411	8856	414	4130	5	20
50	8240	48	8880	49	5910	5	3870	412	8442	414	4125	5	10
13 0	0.108289	49	0.108929	49	1.005915	5	9.23459	411	9.18028	414	0.994120	5	**47** 0
10	8337	48	8978	49	5921	6	3048	411	7615	413	4114	6	50
20	8385	48	9027	49	5926	5	2637	411	7202	413	4109	5	40
30	8433	48	9076	49	5931	5	2227	410	6790	412	4104	5	30
40	8481	48	9125	49	5937	6	1818	409	6378	412	4098	6	20
50	8530	49	9174	49	5942	5	1408	410	5966	412	4093	5	10
14 0	0.108578	48	0.109223	49	1.005947	5	9.20999	409	9.15554	412	0.994088	5	**46** 0
10	8626	48	9273	50	5953	6	0591	408	5143	411	4083	5	50
20	8674	48	9322	49	5958	5	9.20182	409	4733	410	4077	6	40
30	8722	48	9371	49	5963	5	9.19775	407	4322	411	4072	5	30
40	8770	48	9420	49	5969	6	9367	408	3912	410	4067	5	20
50	8819	49	9469	49	5974	5	8960	407	3503	409	4062	5	10
15 0	0.108867	48	0.109518	49	1.005979	5	9.18553	407	9.13093	410	0.994056	6	**45** 0
10	8915	48	9567	49	5985	6	8147	406	2685	408	4051	5	50
20	8963	48	9616	49	5990	5	7741	406	2276	409	4046	5	40
30	9011	48	9665	49	5995	5	7335	406	1868	408	4040	6	30
40	9060	49	9714	49	6001	6	6929	406	1460	408	4035	5	20
50	9108	48	9763	49	6006	5	6524	405	1053	407	4030	5	10
16 0	0.109156	48	0.109812	49	1.006011	5	9.16120	404	9.10646	407	0.994025	5	**44** 0
10	9204	48	9861	49	6017	6	5716	404	9.10239	407	4019	6	50
20	9252	48	9910	49	6022	5	5312	404	9.09833	406	4014	5	40
30	9301	49	0.109959	49	6027	5	4908	404	9427	406	4009	5	30
40	9349	48	0.110008	49	6033	6	4505	403	9021	406	4003	6	20
50	9397	48	0058	50	6038	5	4102	403	8616	405	3998	5	10
17 0	0.109445	48	0.110107	49	1.006043	5	9.13699	403	9.08211	405	0.993993	5	**43** 0
10	9493	48	0156	49	6049	6	3297	402	7806	405	3988	5	50
20	9542	49	0205	49	6054	5	2896	401	7402	404	3982	6	40
30	9590	48	0254	49	6060	6	2494	402	6998	404	3977	5	30
40	9638	48	0303	49	6065	5	2093	401	6595	403	3972	5	20
50	9686	48	0352	49	6070	5	1692	401	6191	404	3966	6	10
18 0	0.109734	48	0.110401	49	1.006076	6	9.11292	400	9.05789	402	0.993961	5	**42** 0
10	9782	48	0450	49	6081	5	0892	400	5386	403	3956	5	50
20	9831	49	0499	49	6087	6	0492	400	4984	402	3950	6	40
30	9879	48	0548	49	6092	5	9.10093	399	4582	402	3945	5	30
40	9927	48	0597	49	6097	5	9.09694	399	4181	401	3940	5	20
50	0.109975	48	0646	49	6103	6	9295	399	3780	401	3934	6	10
19 0	0.110023	48	0.110695	49	1.006108	5	9.08897	398	9.03379	401	0.993929	5	**41** 0
10	0072	49	0745	50	6113	5	8499	398	2979	400	3924	5	50
20	0120	48	0794	49	6119	6	8102	397	2579	400	3918	6	40
30	0168	48	0843	49	6124	5	7705	397	2179	400	3913	5	30
40	0216	48	0892	49	6130	6	7308	397	1780	399	3908	5	20
50	0264	48	0941	49	6135	5	6911	397	1381	399	3902	6	10
20 0	0.110313	49	0.110990	49	1.006141	6	9.06515	396	9.00983	398	0.993897	5	**40** 0
	cos		cotg		cosec		sec		tang		sin		

49
1 4.9
2 9.8
3 14.7
4 19.6
5 24.5
6 29.4
7 34.3
8 39.2
9 44.1

396
1 39.6
2 79.2
3 118.8
4 158.4
5 198.0
6 237.6
7 277.2
8 316.8
9 356.4

402
1 40.2
2 80.4
3 120.6
4 160.8
5 201.0
6 241.2
7 281.4
8 321.6
9 361.8

408
1 40.8
2 81.6
3 122.4
4 163.2
5 204.0
6 244.8
7 285.6
8 326.4
9 367.2

415
1 41.5
2 83.0
3 124.5
4 166.0
5 207.5
6 249.0
7 290.5
8 332.0
9 373.5

425
1 42.5
2 85.0
3 127.5
4 170.0
5 212.5
6 255.0
7 297.5
8 340.0
9 382.5

435
1 43.5
2 87.0
3 130.5
4 174.0
5 217.5
6 261.0
7 304.5
8 348.0
9 391.5

443
1 44.3
2 88.6
3 132.9
4 177.2
5 221.5
6 265.8
7 310.1
8 354.4
9 398.7

6°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.110313		0.110990		1.006141		9.06515		9.00983		0.993897		**40′** 0″
10	0361	48	1039	49	6146	5	6119	396	0584	399	3892	5	50
20	0409	48	1088	49	6151	5	5724	395	9.00186	398	3886	6	40
30	0457	48	1137	49	6157	6	5329	395	8.99789	397	3881	5	30
40	0505	48	1186	49	6162	5	4934	395	9392	397	3876	5	20
50	0553	48	1235	49	6168	6	4540	394	8995	397	3870	6	10
21 0	0.110602	49	0.111284	49	1.006173	5	9.04146	394	8.98598	397	0.993865	5	**39** 0
10	0650	48	1333	49	6178	5	3752	394	8202	396	3859	6	50
20	0698	48	1383	50	6184	6	3358	394	7806	396	3854	5	40
30	0746	48	1432	49	6189	5	2965	393	7411	395	3849	5	30
40	0794	48	1481	49	6195	6	2573	392	7016	395	3843	6	20
50	0843	49	1530	49	6200	5	2180	393	6621	395	3838	5	10
22 0	0.110891	48	0.111579	49	1.006206	6	9.01788	392	8.96227	394	0.993833	5	**38** 0
10	0939	48	1628	49	6211	5	1397	391	5833	394	3827	6	50
20	0987	48	1677	49	6217	6	1005	392	5439	394	3822	5	40
30	1035	48	1726	49	6222	5	0614	391	5045	394	3816	6	30
40	1083	48	1775	49	6227	5	9.00224	390	4652	393	3811	5	20
50	1132	49	1824	49	6233	6	8.99833	391	4260	392	3806	5	10
23 0	0.111180	48	0.111873	49	1.006238	5	8.99444	389	8.93867	393	0.993800	6	**37** 0
10	1228	48	1923	50	6244	6	9054	390	3475	392	3795	5	50
20	1276	48	1972	49	6249	5	8665	389	3084	391	3790	5	40
30	1324	48	2021	49	6255	6	8276	389	2692	392	3784	6	30
40	1373	49	2070	49	6260	5	7887	389	2301	391	3779	5	20
50	1421	48	2119	49	6266	6	7499	388	1910	391	3773	6	10
24 0	0.111469	48	0.112168	49	1.006271	5	8.97111	388	8.91520	390	0.993768	5	**36** 0
10	1517	48	2217	49	6277	6	6723	388	1130	390	3763	5	50
20	1565	48	2266	49	6282	5	6336	387	0740	390	3757	6	40
30	1613	48	2315	49	6288	6	5949	387	8.90351	389	3752	5	30
40	1662	49	2364	49	6293	5	5563	386	8.89962	389	3746	6	20
50	1710	48	2413	49	6299	6	5176	387	9573	389	3741	5	10
25 0	0.111758	48	0.112463	50	1.006304	5	8.94791	385	8.89185	388	0.993735	6	**35** 0
10	1806	48	2512	49	6310	6	4405	386	8797	388	3730	5	50
20	1854	48	2561	49	6315	5	4020	385	8409	388	3725	5	40
30	1903	49	2610	49	6321	6	3635	385	8022	387	3719	6	30
40	1951	48	2659	49	6326	5	3250	385	7635	387	3714	5	20
50	1999	48	2708	49	6332	6	2866	384	7248	387	3708	6	10
26 0	0.112047	48	0.112757	49	1.006337	5	8.92482	384	8.86862	386	0.993703	5	**34** 0
10	2095	48	2806	49	6343	6	2099	383	6476	386	3697	6	50
20	2143	48	2855	49	6348	5	1715	384	6090	386	3692	5	40
30	2192	49	2904	49	6354	6	1332	383	5705	385	3687	5	30
40	2240	48	2954	50	6359	5	0950	382	5320	385	3681	6	20
50	2288	48	3003	49	6365	6	0568	382	4935	385	3676	5	10
27 0	0.112336	48	0.113052	49	1.006370	5	8.90186	382	8.84551	384	0.993670	6	**33** 0
10	2384	48	3101	49	6376	6	8.89804	382	4167	384	3665	5	50
20	2432	48	3150	49	6381	5	9423	381	3783	384	3659	6	40
30	2481	49	3199	49	6387	6	9042	381	3400	383	3654	5	30
40	2529	48	3248	49	6392	5	8661	381	3017	383	3648	6	20
50	2577	48	3297	49	6398	6	8281	380	2634	383	3643	5	10
28 0	0.112625	48	0.113346	49	1.006403	5	8.87901	380	8.82252	382	0.993638	5	**32** 0
10	2673	48	3395	49	6409	6	7521	380	1870	382	3632	6	50
20	2722	49	3445	50	6414	5	7142	379	1488	382	3627	5	40
30	2770	48	3494	49	6420	6	6763	379	1107	381	3621	6	30
40	2818	48	3543	49	6425	5	6385	378	0726	381	3616	5	20
50	2866	48	3592	49	6431	6	6006	379	8.80345	381	3610	6	10
29 0	0.112914	48	0.113641	49	1.006436	5	8.85628	378	8.79964	381	0.993605	5	**31** 0
10	2962	48	3690	49	6442	6	5251	377	9584	380	3599	6	50
20	3011	49	3739	49	6448	6	4873	378	9205	379	3594	5	40
30	3059	48	3788	49	6453	5	4496	377	8825	380	3588	6	30
40	3107	48	3837	49	6459	6	4120	376	8446	379	3583	5	20
50	3155	48	3886	49	6464	5	3743	377	8067	379	3577	6	10
30 0	0.113203	48	0.113936	50	1.006470	6	8.83367	376	8.77689	378	0.993572	5	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

360

1	36.0
2	72.0
3	108.0
4	144.0
5	180.0
6	216.0
7	252.0
8	288.0
9	324.0

366

1	36.6
2	73.2
3	109.8
4	146.4
5	183.0
6	219.6
7	256.2
8	292.8
9	329.4

372

1	37.2
2	74.4
3	111.6
4	148.8
5	186.0
6	223.2
7	260.4
8	297.6
9	334.8

378

1	37.8
2	75.6
3	113.4
4	151.2
5	189.0
6	226.8
7	264.6
8	302.4
9	340.2

385

1	38.5
2	77.0
3	115.5
4	154.0
5	192.5
6	231.0
7	269.5
8	308.0
9	346.5

395

1	39.5
2	79.0
3	118.5
4	158.0
5	197.5
6	237.0
7	276.5
8	316.0
9	355.5

83°

6°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.113203		0.113936		1.006470		8.83367		8.77689		0.993572		**30′** 0″
10	3251	48	3985	49	6475	5	2991	376	7311	378	3566	6	50
20	3300	49	4034	49	6481	6	2616	375	6933	378	3561	5	40
30	3348	48	4083	49	6486	5	2241	375	6555	378	3555	6	30
40	3396	48	4132	49	6492	6	1866	375	6178	377	3550	5	20
50	3444	48	4181	49	6498	6	1492	374	5801	377	3544	6	10
31 0	0.113492	48	0.114230	49	1.006503	5	8.81118	374	8.75425	376	0.993539	5	**29** 0
10	3540	48	4279	49	6509	6	0744	374	5048	377	3533	6	50
20	3589	49	4329	50	6514	5	8.80370	374	4672	376	3528	5	40
30	3637	48	4378	49	6520	6	8.79997	373	4297	375	3522	6	30
40	3685	48	4427	49	6525	5	9624	373	3922	375	3517	5	20
50	3733	48	4476	49	6531	6	9252	372	3547	375	3511	6	10
32 0	0.113781	48	0.114525	49	1.006537	6	8.78880	372	8.73172	375	0.993506	5	**28** 0
10	3829	48	4574	49	6542	5	8508	372	2798	374	3500	6	50
20	3878	49	4623	49	6548	6	8136	372	2424	374	3495	5	40
30	3926	48	4672	49	6553	5	7765	371	2050	374	3489	6	30
40	3974	48	4721	49	6559	6	7394	371	1677	373	3484	5	20
50	4022	48	4771	50	6565	6	7023	371	1304	373	3478	6	10
33 0	0.114070	48	0.114820	49	1.006570	5	8.76653	370	8.70931	373	0.993473	5	**27** 0
10	4118	48	4869	49	6576	6	6283	370	0558	373	3467	6	50
20	4167	49	4918	49	6581	5	5913	370	8.70186	372	3462	5	40
30	4215	48	4967	49	6587	6	5544	369	8.69814	372	3456	6	30
40	4263	48	5016	49	6593	6	5175	369	9443	371	3451	5	20
50	4311	48	5065	49	6598	5	4806	369	9072	371	3445	6	10
34 0	0.114359	48	0.115114	49	1.006604	6	8.74438	368	8.68701	371	0.993439	6	**26** 0
10	4407	48	5164	50	6609	5	4070	368	8330	371	3434	5	50
20	4456	49	5213	49	6615	6	3702	368	7960	370	3428	6	40
30	4504	48	5262	49	6621	6	3334	368	7590	370	3423	5	30
40	4552	48	5311	49	6626	5	2967	367	7221	369	3417	6	20
50	4600	48	5360	49	6632	6	2600	367	6851	370	3412	5	10
35 0	0.114648	48	0.115409	49	1.006638	6	8.72234	366	8.66482	369	0.993406	6	**25** 0
10	4696	48	5458	49	6643	5	1867	367	6114	368	3401	5	50
20	4745	49	5507	49	6649	6	1501	366	5745	369	3395	6	40
30	4793	48	5557	50	6655	6	1136	365	5377	368	3389	6	30
40	4841	48	5606	49	6660	5	0770	366	5009	368	3384	5	20
50	4889	48	5655	49	6666	6	0405	365	4642	367	3378	6	10
36 0	0.114937	48	0.115704	49	1.006671	5	8.70041	364	8.64275	367	0.993373	5	**24** 0
10	4985	48	5753	49	6677	6	8.69676	365	3908	367	3367	6	50
20	5033	48	5802	49	6683	6	9312	364	3541	367	3362	5	40
30	5082	49	5851	49	6688	5	8948	364	3175	366	3356	6	30
40	5130	48	5900	49	6694	6	8585	363	2809	366	3350	6	20
50	5178	48	5950	50	6700	6	8222	363	2444	365	3345	5	10
37 0	0.115226	48	0.115999	49	1.006705	5	8.67859	363	8.62078	366	0.993339	6	**23** 0
10	5274	48	6048	49	6711	6	7496	363	1713	365	3334	5	50
20	5322	48	6097	49	6717	6	7134	362	1349	364	3328	6	40
30	5371	49	6146	49	6722	5	6772	362	0984	365	3323	5	30
40	5419	48	6195	49	6728	6	6410	362	0620	364	3317	6	20
50	5467	48	6244	49	6734	6	6049	361	8.60256	364	3311	6	10
38 0	0.115515	48	0.116294	50	1.006739	5	8.65688	361	8.59893	363	0.993306	5	**22** 0
10	5563	48	6343	49	6745	6	5327	361	9530	363	3300	6	50
20	5611	48	6392	49	6751	6	4967	360	9167	363	3295	5	40
30	5660	49	6441	49	6756	5	4607	360	8804	363	3289	6	30
40	5708	48	6490	49	6762	6	4247	360	8442	362	3283	6	20
50	5756	48	6539	49	6768	6	3887	360	8080	362	3278	5	10
39 0	0.115804	48	0.116588	49	1.006773	5	8.63528	359	8.57718	362	0.993272	6	**21** 0
10	5852	48	6638	50	6779	6	3169	359	7357	361	3266	6	50
20	5900	48	6687	49	6785	6	2811	358	6996	361	3261	5	40
30	5948	48	6736	49	6791	6	2452	359	6635	361	3255	6	30
40	5997	49	6785	49	6796	5	2094	358	6275	360	3250	5	20
50	6045	48	6834	49	6802	6	1736	358	5915	360	3244	6	10
40 0	0.116093	48	0.116883	49	1.006808	6	8.61379	357	8.55555	360	0.993238	6	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49		357		363		369		375		381		390		399	
1	4.9	1	35.7	1	36.3	1	36.9	1	37.5	1	38.1	1	39.0	1	39.9
2	9.8	2	71.4	2	72.6	2	73.8	2	75.0	2	76.2	2	78.0	2	79.8
3	14.7	3	107.1	3	108.9	3	110.7	3	112.5	3	114.3	3	117.0	3	119.7
4	19.6	4	142.8	4	145.2	4	147.6	4	150.0	4	152.4	4	156.0	4	159.6
5	24.5	5	178.5	5	181.5	5	184.5	5	187.5	5	190.5	5	195.0	5	199.5
6	29.4	6	214.2	6	217.8	6	221.4	6	225.0	6	228.6	6	234.0	6	239.4
7	34.3	7	249.9	7	254.1	7	258.3	7	262.5	7	266.7	7	273.0	7	279.3
8	39.2	8	285.6	8	290.4	8	295.2	8	300.0	8	304.8	8	312.0	8	319.2
9	44.1	9	321.3	9	326.7	9	332.1	9	337.5	9	342.9	9	351.0	9	359.1

83°

6°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.116093		0.116883		1.006808		8.61379		8.55555		0.993238		**20′** 0″
10	6141	48	6932	49	6813	5	1022	357	5195	360	3233	5	50
20	6189	48	6982	50	6819	6	0665	357	4836	359	3227	6	40
30	6237	48	7031	49	6825	6	8.60308	357	4477	359	3221	6	30
40	6286	49	7080	49	6831	6	8.59952	356	4118	359	3216	5	20
50	6334	48	7129	49	6836	5	9596	356	3760	358	3210	6	10
41 0	0.116382	48	0.117178	49	1.006842	6	8.59241	355	8.53402	358	0.993205	5	**19** 0
10	6430	48	7227	49	6848	6	8885	356	3044	358	3199	6	50
20	6478	48	7276	49	6853	5	8530	355	2686	358	3193	6	40
30	6526	48	7326	50	6859	6	8175	355	2329	357	3188	5	30
40	6574	48	7375	49	6865	6	7821	354	1972	357	3182	6	20
50	6623	49	7424	49	6871	6	7467	354	1616	356	3176	6	10
42 0	0.116671	48	0.117473	49	1.006876	5	8.57113	354	8.51259	357	0.993171	5	**18** 0
10	6719	48	7522	49	6882	6	6759	354	0903	356	3165	6	50
20	6767	48	7571	49	6888	6	6406	353	0548	355	3159	6	40
30	6815	48	7620	49	6894	6	6053	353	8.50192	356	3154	5	30
40	6863	48	7670	50	6899	5	5700	353	8.49837	355	3148	6	20
50	6911	48	7719	49	6905	6	5348	352	9482	355	3142	6	10
43 0	0.116960	49	0.117768	49	1.006911	6	8.54996	352	8.49128	354	0.993137	5	**17** 0
10	7008	48	7817	49	6917	6	4644	352	8773	355	3131	6	50
20	7056	48	7866	49	6922	5	4292	352	8419	354	3125	6	40
30	7104	48	7915	49	6928	6	3941	351	8066	353	3120	5	30
40	7152	48	7965	50	6934	6	3590	351	7712	354	3114	6	20
50	7200	48	8014	49	6940	6	3240	350	7359	353	3108	6	10
44 0	0.117249	49	0.118063	49	1.006945	5	8.52889	351	8.47007	352	0.993103	5	**16** 0
10	7297	48	8112	49	6951	6	2539	350	6654	353	3097	6	50
20	7345	48	8161	49	6957	6	2189	350	6302	352	3091	6	40
30	7393	48	8210	49	6963	6	1840	349	5950	352	3086	5	30
40	7441	48	8259	49	6968	5	1491	349	5598	352	3080	6	20
50	7489	48	8309	50	6974	6	1142	349	5247	351	3074	6	10
45 0	0.117537	48	0.118358	49	1.006980	6	8.50793	349	8.44896	351	0.993068	6	**15** 0
10	7586	49	8407	49	6986	6	0445	348	4545	351	3063	5	50
20	7634	48	8456	49	6991	5	8.50097	348	4194	351	3057	6	40
30	7682	48	8505	49	6997	6	8.49749	348	3844	350	3051	6	30
40	7730	48	8554	49	7003	6	9401	348	3494	350	3046	5	20
50	7778	48	8604	50	7009	6	9054	347	3145	349	3040	6	10
46 0	0.117826	48	0.118653	49	1.007015	6	8.48707	347	8.42795	350	0.993034	6	**14** 0
10	7874	48	8702	49	7020	5	8361	346	2446	349	3029	5	50
20	7923	49	8751	49	7026	6	8014	347	2097	349	3023	6	40
30	7971	48	8800	49	7032	6	7668	346	1749	348	3017	6	30
40	8019	48	8849	49	7038	6	7322	346	1401	348	3011	6	20
50	8067	48	8899	50	7044	6	6977	345	1053	348	3006	5	10
47 0	0.118115	48	0.118948	49	1.007049	5	8.46632	345	8.40705	348	0.993000	6	**13** 0
10	8163	48	8997	49	7055	6	6287	345	0358	347	2994	6	50
20	8211	48	9046	49	7061	6	5942	345	8.40011	347	2988	6	40
30	8260	49	9095	49	7067	6	5598	344	8.39664	347	2983	5	30
40	8308	48	9144	49	7073	6	5254	344	9317	347	2977	6	20
50	8356	48	9194	50	7079	6	4910	344	8971	346	2971	6	10
48 0	0.118404	48	0.119243	49	1.007084	5	8.44566	344	8.38625	346	0.992966	5	**12** 0
10	8452	48	9292	49	7090	6	4223	343	8280	345	2960	6	50
20	8500	48	9341	49	7096	6	3880	343	7934	346	2954	6	40
30	8548	48	9390	49	7102	6	3537	343	7589	345	2948	6	30
40	8597	49	9439	49	7108	6	3195	342	7244	345	2943	5	20
50	8645	48	9489	50	7113	5	2853	342	6900	344	2937	6	10
49 0	0.118693	48	0.119538	49	1.007119	6	8.42511	342	8.36555	345	0.992931	6	**11** 0
10	8741	48	9587	49	7125	6	2169	342	6211	344	2925	6	50
20	8789	48	9636	49	7131	6	1828	341	5868	343	2920	5	40
30	8837	48	9685	49	7137	6	1487	341	5524	344	2914	6	30
40	8885	48	9735	50	7143	6	1146	341	5181	343	2908	6	20
50	8933	48	9784	49	7149	6	0806	340	4838	343	2902	6	10
50 0	0.118982	49	0.119833	49	1.007154	5	8.40466	340	8.34496	342	0.992896	6	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

327

1	32.7
2	65.4
3	98.1
4	130.8
5	163.5
6	196.2
7	228.9
8	261.6
9	294.3

333

1	33.3
2	66.6
3	99.9
4	133.2
5	166.5
6	199.8
7	233.1
8	266.4
9	299.7

339

1	33.9
2	67.8
3	101.7
4	135.6
5	169.5
6	203.4
7	237.3
8	271.2
9	305.1

345

1	34.5
2	69.0
3	103.5
4	138.0
5	172.5
6	207.0
7	241.5
8	276.0
9	310.5

351

1	35.1
2	70.2
3	105.3
4	140.4
5	175.5
6	210.6
7	245.7
8	280.8
9	315.9

357

1	35.7
2	71.4
3	107.1
4	142.8
5	178.5
6	214.2
7	249.9
8	285.6
9	321.3

83°

6°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.118982		0.119833		1.007154		8.40466		8.34496		0.992896		**10′** 0″
10	9030	48	9882	49	7160	6	8.40126	340	4153	343	2891	5	50
20	9078	48	9931	49	7166	6	8.39786	340	3811	342	2885	6	40
30	9126	48	0.119980	49	7172	6	9447	339	3469	342	2879	6	30
40	9174	48	0.120030	50	7178	6	9108	339	3128	341	2873	6	20
50	9222	48	0079	49	7184	6	8769	339	2787	341	2868	5	10
51 0	0.119270	48	0.120128	49	1.007190	6	8.38431	338	8.32446	341	0.992862	6	**9** 0
10	9319	49	0177	49	7195	5	8092	339	2105	341	2856	6	50
20	9367	48	0226	49	7201	6	7754	338	1765	340	2850	6	40
30	9415	48	0275	49	7207	6	7417	337	1425	340	2844	6	30
40	9463	48	0325	50	7213	6	7079	338	1085	340	2839	5	20
50	9511	48	0374	49	7219	6	6742	337	0745	340	2833	6	10
52 0	0.119559	48	0.120423	49	1.007225	6	8.36405	337	8.30406	339	0.992827	6	**8** 0
10	9607	48	0472	49	7231	6	6069	336	8.30067	339	2821	6	50
20	9656	49	0521	49	7237	6	5732	337	8.29728	339	2815	6	40
30	9704	48	0571	50	7242	5	5396	336	9390	338	2810	5	30
40	9752	48	0620	49	7248	6	5061	335	9051	339	2804	6	20
50	9800	48	0669	49	7254	6	4725	336	8713	338	2798	6	10
53 0	0.119848	48	0.120718	49	1.007260	6	8.34390	335	8.28376	337	0.992792	6	**7** 0
10	9896	48	0767	49	7266	6	4055	335	8038	338	2786	6	50
20	9944	48	0817	50	7272	6	3720	335	7701	337	2781	5	40
30	0.119992	48	0866	49	7278	6	3386	334	7364	337	2775	6	30
40	0.120041	49	0915	49	7284	6	3052	334	7028	336	2769	6	20
50	0089	48	0964	49	7290	6	2718	334	6692	336	2763	6	10
54 0	0.120137	48	0.121013	49	1.007295	5	8.32384	334	8.26355	337	0.992757	6	**6** 0
10	0185	48	1062	49	7301	6	2051	333	6020	335	2752	5	50
20	0233	48	1112	50	7307	6	1718	333	5684	336	2746	6	40
30	0281	48	1161	49	7313	6	1385	333	5349	335	2740	6	30
40	0329	48	1210	49	7319	6	1052	333	5014	335	2734	6	20
50	0377	48	1259	49	7325	6	0720	332	4679	335	2728	6	10
55 0	0.120426	49	0.121308	49	1.007331	6	8.30388	332	8.24345	334	0.992722	6	**5** 0
10	0474	48	1358	50	7337	6	8.30056	332	4011	334	2717	5	50
20	0522	48	1407	49	7343	6	8.29725	331	3677	334	2711	6	40
30	0570	48	1456	49	7349	6	9394	331	3343	334	2705	6	30
40	0618	48	1505	49	7355	6	9063	331	3010	333	2699	6	20
50	0666	48	1554	49	7361	6	8732	331	2677	333	2693	6	10
56 0	0.120714	48	0.121604	50	1.007367	6	8.28402	330	8.22344	333	0.992687	6	**4** 0
10	0763	49	1653	49	7373	6	8072	330	2011	333	2681	6	50
20	0811	48	1702	49	7378	5	7742	330	1679	332	2676	5	40
30	0859	48	1751	49	7384	6	7412	330	1347	332	2670	6	30
40	0907	48	1800	49	7390	6	7083	329	1015	332	2664	6	20
50	0955	48	1850	50	7396	6	6754	329	0684	331	2658	6	10
57 0	0.121003	48	0.121899	49	1.007402	6	8.26425	329	8.20352	332	0.992652	6	**3** 0
10	1051	48	1948	49	7408	6	6096	329	8.20021	331	2646	6	50
20	1099	48	1997	49	7414	6	5768	328	8.19691	330	2640	6	40
30	1148	49	2046	49	7420	6	5440	328	9360	331	2635	5	30
40	1196	48	2096	50	7426	6	5112	328	9030	330	2629	6	20
50	1244	48	2145	49	7432	6	4785	327	8700	330	2623	6	10
58 0	0.121292	48	0.122194	49	1.007438	6	8.24457	328	8.18370	330	0.992617	6	**2** 0
10	1340	48	2243	49	7444	6	4131	326	8041	329	2611	6	50
20	1388	48	2292	49	7450	6	3804	327	7712	329	2605	6	40
30	1436	48	2342	50	7456	6	3477	327	7383	329	2599	6	30
40	1484	48	2391	49	7462	6	3151	326	7054	329	2593	6	20
50	1532	48	2440	49	7468	6	2825	326	6726	328	2587	6	10
59 0	0.121581	49	0.122489	49	1.007474	6	8.22500	325	8.16398	328	0.992582	5	**1** 0
10	1629	48	2539	50	7480	6	2174	326	6070	328	2576	6	50
20	1677	48	2588	49	7486	6	1849	325	5742	328	2570	6	40
30	1725	48	2637	49	7492	6	1524	325	5415	327	2564	6	30
40	1773	48	2686	49	7498	6	1199	325	5088	327	2558	6	20
50	1821	48	2735	49	7504	6	0875	324	4761	327	2552	6	10
60 0	0.121869	48	0.122785	50	1.007510	6	8.20551	324	8.14435	326	0.992546	6	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49
1 4.9
2 9.8
3 14.7
4 19.6
5 24.5
6 29.4
7 34.3
8 39.2
9 44.1

324
1 32.4
2 64.8
3 97.2
4 129.6
5 162.0
6 194.4
7 226.8
8 259.2
9 291.6

330
1 33.0
2 66.0
3 99.0
4 132.0
5 165.0
6 198.0
7 231.0
8 264.0
9 297.0

336
1 33.6
2 67.2
3 100.8
4 134.4
5 168.0
6 201.6
7 235.2
8 268.8
9 302.4

342
1 34.2
2 68.4
3 102.6
4 136.8
5 171.0
6 205.2
7 239.4
8 273.6
9 307.8

348
1 34.8
2 69.6
3 104.4
4 139.2
5 174.0
6 208.8
7 243.6
8 278.4
9 313.2

354
1 35.4
2 70.8
3 106.2
4 141.6
5 177.0
6 212.4
7 247.8
8 283.2
9 318.6

360
1 36.0
2 72.0
3 108.0
4 144.0
5 180.0
6 216.0
7 252.0
8 288.0
9 324.0

7°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.121869		0.122785		1.007510		8.20551		8.14435		0.992546		**60′** 0″
10	1917	48	2834	49	7516	6	8.20227	324	4108	327	2540	6	50
20	1966	49	2883	49	7522	6	8.19903	324	3782	326	2534	6	40
30	2014	48	2932	49	7528	6	9580	323	3457	325	2528	6	30
40	2062	48	2981	49	7534	6	9257	323	3131	326	2522	6	20
50	2110	48	3031	50	7540	6	8934	323	2806	325	2517	5	10
1 0	0.122158	48	0.123080	49	1.007546	6	8.18612	322	8.12481	325	0.992511	6	**59** 0
10	2206	48	3129	49	7552	6	8289	323	2156	325	2505	6	50
20	2254	48	3178	49	7558	6	7967	322	1831	325	2499	6	40
30	2302	48	3227	49	7564	6	7645	322	1507	324	2493	6	30
40	2351	49	3277	50	7570	6	7324	321	1183	324	2487	6	20
50	2399	48	3326	49	7576	6	7003	321	0859	324	2481	6	10
2 0	0.122447	48	0.123375	49	1.007582	6	8.16681	322	8.10536	323	0.992475	6	**58** 0
10	2495	48	3424	49	7588	6	6361	320	8.10213	323	2469	6	50
20	2543	48	3474	50	7594	6	6040	321	8.09890	323	2463	6	40
30	2591	48	3523	49	7600	6	5720	320	9567	323	2457	6	30
40	2639	48	3572	49	7606	6	5400	320	9245	322	2451	6	20
50	2687	48	3621	49	7612	6	5080	320	8922	323	2445	6	10
3 0	0.122735	48	0.123670	49	1.007618	6	8.14760	320	8.08600	322	0.992439	6	**57** 0
10	2784	49	3720	50	7624	6	4441	319	8279	321	2433	6	50
20	2832	48	3769	49	7630	6	4122	319	7957	322	2428	5	40
30	2880	48	3818	49	7636	6	3803	319	7636	321	2422	6	30
40	2928	48	3867	49	7642	6	3485	318	7315	321	2416	6	20
50	2976	48	3917	50	7648	6	3167	318	6994	321	2410	6	10
4 0	0.123024	48	0.123966	49	1.007654	6	8.12849	318	8.06674	320	0.992404	6	**56** 0
10	3072	48	4015	49	7661	7	2531	318	6354	320	2398	6	50
20	3120	48	4064	49	7667	6	2213	318	6034	320	2392	6	40
30	3168	48	4114	50	7673	6	1896	317	5714	320	2386	6	30
40	3217	49	4163	49	7679	6	1579	317	5395	319	2380	6	20
50	3265	48	4212	49	7685	6	1262	317	5075	320	2374	6	10
5 0	0.123313	48	0.124261	49	1.007691	6	8.10946	316	8.04756	319	0.992368	6	**55** 0
10	3361	48	4310	49	7697	6	0629	317	4438	318	2362	6	50
20	3409	48	4360	50	7703	6	8.10313	316	4119	319	2356	6	40
30	3457	48	4409	49	7709	6	8.09998	315	3801	318	2350	6	30
40	3505	48	4458	49	7715	6	9682	316	3483	318	2344	6	20
50	3553	48	4507	49	7721	6	9367	315	3165	318	2338	6	10
6 0	0.123601	48	0.124557	50	1.007727	6	8.09052	315	8.02848	317	0.992332	6	**54** 0
10	3650	49	4606	49	7733	6	8737	315	2531	317	2326	6	50
20	3698	48	4655	49	7739	6	8422	315	2214	317	2320	6	40
30	3746	48	4704	49	7746	7	8108	314	1897	317	2314	6	30
40	3794	48	4754	50	7752	6	7794	314	1581	316	2308	6	20
50	3842	48	4803	49	7758	6	7480	314	1264	317	2302	6	10
7 0	0.123890	48	0.124852	49	1.007764	6	8.07167	313	8.00948	316	0.992296	6	**53** 0
10	3938	48	4901	49	7770	6	6853	314	0633	315	2290	6	50
20	3986	48	4950	49	7776	6	6540	313	0317	316	2284	6	40
30	4034	48	5000	50	7782	6	6228	312	8.00002	315	2278	6	30
40	4083	49	5049	49	7788	6	5915	313	7.99687	315	2272	6	20
50	4131	48	5098	49	7794	6	5603	312	9372	315	2266	6	10
8 0	0.124179	48	0.125147	49	1.007801	7	8.05291	312	7.99058	314	0.992260	6	**52** 0
10	4227	48	5197	50	7807	6	4979	312	8743	315	2254	6	50
20	4275	48	5246	49	7813	6	4667	312	8429	314	2248	6	40
30	4323	48	5295	49	7819	6	4356	311	8115	314	2242	6	30
40	4371	48	5344	49	7825	6	4045	311	7802	313	2236	6	20
50	4419	48	5394	50	7831	6	3734	311	7489	313	2230	6	10
9 0	0.124467	48	0.125443	49	1.007837	6	8.03423	311	7.97176	313	0.992224	6	**51** 0
10	4516	49	5492	49	7843	6	3113	310	6863	313	2218	6	50
20	4564	48	5541	49	7850	7	2803	310	6550	313	2212	6	40
30	4612	48	5591	50	7856	6	2493	310	6238	312	2206	6	30
40	4660	48	5640	49	7862	6	2183	310	5926	312	2200	6	20
50	4708	48	5689	49	7868	6	1874	309	5614	312	2193	7	10
10 0	0.124756	48	0.125738	49	1.007874	6	8.01565	309	7.95302	312	0.992187	6	**50** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

297

1	29.7
2	59.4
3	89.1
4	118.8
5	148.5
6	178.2
7	207.9
8	237.6
9	267.3

301

1	30.1
2	60.2
3	90.3
4	120.4
5	150.5
6	180.6
7	210.7
8	240.8
9	270.9

306

1	30.6
2	61.2
3	91.8
4	122.4
5	153.0
6	183.6
7	214.2
8	244.8
9	275.4

312

1	31.2
2	62.4
3	93.6
4	124.8
5	156.0
6	187.2
7	218.4
8	249.6
9	280.8

318

1	31.8
2	63.6
3	95.4
4	127.2
5	159.0
6	190.8
7	222.6
8	254.4
9	286.2

324

1	32.4
2	64.8
3	97.2
4	129.6
5	162.0
6	194.4
7	226.8
8	259.2
9	291.6

82°

7°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.124756		0.125738		1.007874		8.01565		7·95302		0.992187		**50′** 0″
10	4804	48	5788	50	7880	6	1256	309	4991	311	2181	6	50
20	4852	48	5837	49	7886	6	0947	309	4680	311	2175	6	40
30	4900	48	5886	49	7893	7	0638	309	4369	311	2169	6	30
40	4948	48	5935	49	7899	6	0330	308	4058	311	2163	6	20
50	4997	49	5985	50	7905	6	8.00022	308	3748	310	2157	6	10
11 0	0.125045	48	0.126034	49	1.007911	6	7·99714	308	7·93438	310	0.992151	6	**49** 0
10	5093	48	6083	49	7917	6	9407	307	3128	310	2145	6	50
20	5141	48	6132	49	7923	6	9100	307	2818	310	2139	6	40
30	5189	48	6182	50	7929	6	8793	307	2508	310	2133	6	30
40	5237	48	6231	49	7936	7	8486	307	2199	309	2127	6	20
50	5285	48	6280	49	7942	6	8179	307	1890	309	2121	6	10
12 0	0.125333	48	0.126329	49	1.007948	6	7·97873	306	7·91582	308	0.992115	6	**48** 0
10	5381	48	6379	50	7954	6	7567	306	1273	309	2109	6	50
20	5429	48	6428	49	7960	6	7261	306	0965	308	2103	6	40
30	5478	49	6477	49	7967	7	6955	306	0657	308	2096	7	30
40	5526	48	6526	49	7973	6	6650	305	0349	308	2090	6	20
50	5574	48	6576	50	7979	6	6345	305	7·90041	308	2084	6	10
13 0	0.125622	48	0.126625	49	1.007985	6	7·96040	305	7·89734	307	0.992078	6	**47** 0
10	5670	48	6674	49	7991	6	5735	305	9427	307	2072	6	50
20	5718	48	6723	49	7997	6	5431	304	9120	307	2066	6	40
30	5766	48	6773	50	8004	7	5127	304	8813	307	2060	6	30
40	5814	48	6822	49	8010	6	4823	304	8507	306	2054	6	20
50	5862	48	6871	49	8016	6	4519	304	8201	306	2048	6	10
14 0	0.125910	48	0.126920	49	1.008022	6	7·94216	303	7·87895	306	0.992042	6	**46** 0
10	5958	48	6970	50	8028	6	3912	304	7589	306	2036	6	50
20	6007	49	7019	49	8035	7	3609	303	7284	305	2029	7	40
30	6055	48	7068	49	8041	6	3306	303	6979	305	2023	6	30
40	6103	48	7118	50	8047	6	3004	302	6674	305	2017	6	20
50	6151	48	7167	49	8053	6	2702	302	6369	305	2011	6	10
15 0	0.126199	48	0.127216	49	1.008059	6	7·92399	303	7·86064	305	0.992005	6	**45** 0
10	6247	48	7265	49	8066	7	2098	301	5760	304	1999	6	50
20	6295	48	7315	50	8072	6	1796	302	5456	304	1993	6	40
30	6343	48	7364	49	8078	6	1495	301	5152	304	1987	6	30
40	6391	48	7413	49	8084	6	1193	302	4848	304	1980	7	20
50	6439	48	7462	49	8091	7	0892	301	4545	303	1974	6	10
16 0	0.126488	49	0.127512	50	1.008097	6	7·90592	300	7·84242	303	0.991968	6	**44** 0
10	6536	48	7561	49	8103	6	7·90291	301	3939	303	1962	6	50
20	6584	48	7610	49	8109	6	7·89991	300	3636	303	1956	6	40
30	6632	48	7659	49	8116	7	9691	300	3334	302	1950	6	30
40	6680	48	7709	50	8122	6	9391	300	3032	302	1944	6	20
50	6728	48	7758	49	8128	6	9092	299	2730	302	1938	6	10
17 0	0.126776	48	0.127807	49	1.008134	6	7·88792	300	7·82428	302	0.991931	7	**43** 0
10	6824	48	7857	50	8141	7	8493	299	2126	302	1925	6	50
20	6872	48	7906	49	8147	6	8194	299	1825	301	1919	6	40
30	6920	48	7955	49	8153	6	7896	298	1524	301	1913	6	30
40	6968	48	8004	49	8159	6	7597	299	1223	301	1907	6	20
50	7017	49	8054	50	8166	7	7299	298	0923	300	1901	6	10
18 0	0.127065	48	0.128103	49	1.008172	6	7·87001	298	7·80622	301	0.991894	7	**42** 0
10	7113	48	8152	49	8178	6	6703	298	0322	300	1888	6	50
20	7161	48	8202	50	8184	6	6406	297	7·80022	300	1882	6	40
30	7209	48	8251	49	8191	7	6109	297	7·79722	300	1876	6	30
40	7257	48	8300	49	8197	6	5812	297	9423	299	1870	6	20
50	7305	48	8349	49	8203	6	5515	297	9124	299	1864	6	10
19 0	0.127353	48	0.128399	50	1.008209	6	7·85218	297	7·78825	299	0.991857	7	**41** 0
10	7401	48	8448	49	8216	7	4922	296	8526	299	1851	6	50
20	7449	48	8497	49	8222	6	4626	296	8227	299	1845	6	40
30	7497	48	8546	49	8228	6	4330	296	7929	298	1839	6	30
40	7545	48	8596	50	8235	7	4034	296	7631	298	1833	6	20
50	7594	49	8645	49	8241	6	3739	295	7333	298	1827	6	10
20 0	0.127642	48	0.128694	49	1.008247	6	7·83443	296	7·77035	298	0.991820	7	**40** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4·9
2	9·8
3	14·7
4	19·6
5	24·5
6	29·4
7	34·3
8	39·2
9	44·1

295	
1	29·5
2	59·0
3	88·5
4	118·0
5	147·5
6	177·0
7	206·5
8	236·0
9	265·5

299	
1	29·9
2	59·8
3	89·7
4	119·6
5	149·5
6	179·4
7	209·3
8	239·2
9	269·1

303	
1	30·3
2	60·6
3	90·9
4	121·2
5	151·5
6	181·8
7	212·1
8	242·4
9	272·7

309	
1	30·9
2	61·8
3	92·7
4	123·6
5	154·5
6	185·4
7	216·3
8	247·2
9	278·1

315	
1	31·5
2	63·0
3	94·5
4	126·0
5	157·5
6	189·0
7	220·5
8	252·0
9	283·5

321	
1	32·1
2	64·2
3	96·3
4	128·4
5	160·5
6	192·6
7	224·7
8	256·8
9	288·9

327	
1	32·7
2	65·4
3	98·1
4	130·8
5	163·5
6	196·2
7	228·9
8	261·6
9	294·3

82°

7°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.127642		0.128694		1.008247		7·83443		7·77035		0.991820		**40′** 0″
10	7690	48	8744	50	8253	6	3148	295	6738	297	1814	6	50
20	7738	48	8793	49	8260	7	2854	294	6440	298	1808	6	40
30	7786	48	8842	49	8266	6	2559	295	6143	297	1802	6	30
40	7834	48	8891	49	8272	6	2265	294	5847	296	1796	6	20
50	7882	48	8941	50	8279	7	1970	295	5550	297	1789	7	10
21 0	0.127930	48	0.128990	49	1.008285	6	7·81677	293	7·75254	296	0.991783	6	**39** 0
10	7978	48	9039	49	8291	6	1383	294	4958	296	1777	6	50
20	8026	48	9089	50	8298	7	1089	294	4662	296	1771	6	40
30	8074	48	9138	49	8304	6	0796	293	4366	296	1765	6	30
40	8122	48	9187	49	8310	6	0503	293	4071	295	1758	7	20
50	8171	49	9236	49	8316	6	7·80210	293	3775	296	1752	6	10
22 0	0.128219	48	0.129286	50	1.008323	7	7·79918	292	7·73480	295	0.991746	6	**38** 0
10	8267	48	9335	49	8329	6	9625	293	3185	295	1740	6	50
20	8315	48	9384	49	8335	6	9333	292	2891	294	1733	7	40
30	8363	48	9434	50	8342	7	9041	292	2597	294	1727	6	30
40	8411	48	9483	49	8348	6	8750	291	2302	295	1721	6	20
50	8459	48	9532	49	8354	6	8458	292	2009	293	1715	6	10
23 0	0.128507	48	0.129582	50	1.008361	7	7·78167	291	7·71715	294	0.991709	6	**37** 0
10	8555	48	9631	49	8367	6	7876	291	1421	294	1702	7	50
20	8603	48	9680	49	8373	6	7585	291	1128	293	1696	6	40
30	8651	48	9729	49	8380	7	7295	290	0835	293	1690	6	30
40	8699	48	9779	50	8386	6	7004	291	0542	293	1684	6	20
50	8748	49	9828	49	8392	6	6714	290	7·70250	292	1677	7	10
24 0	0.128796	48	0.129877	49	1.008399	7	7·76424	290	7·69957	293	0.991671	6	**36** 0
10	8844	48	9927	50	8405	6	6134	290	9665	292	1665	6	50
20	8892	48	0.129976	49	8411	6	5845	289	9373	292	1659	6	40
30	8940	48	0.130025	49	8418	7	5556	289	9082	291	1652	7	30
40	8988	48	0075	50	8424	6	5266	290	8790	292	1646	6	20
50	9036	48	0124	49	8431	7	4978	288	8499	291	1640	6	10
25 0	0.129084	48	0.130173	49	1.008437	6	7·74689	289	7·68208	291	0.991634	6	**35** 0
10	9132	48	0222	49	8443	6	4401	288	7917	291	1627	7	50
20	9180	48	0272	50	8450	7	4112	289	7626	291	1621	6	40
30	9228	48	0321	49	8456	6	3824	288	7336	290	1615	6	30
40	9276	48	0370	49	8462	6	3537	287	7046	290	1609	6	20
50	9324	48	0420	50	8469	7	3249	288	6756	290	1602	7	10
26 0	0.129373	49	0.130469	49	1.008475	6	7·72962	287	7·66466	290	0.991596	6	**34** 0
10	9421	48	0518	49	8482	7	2675	287	6176	290	1590	6	50
20	9469	48	0568	50	8488	6	2388	287	5887	289	1584	6	40
30	9517	48	0617	49	8494	6	2101	287	5598	289	1577	7	30
40	9565	48	0666	49	8501	7	1815	286	5309	289	1571	6	20
50	9613	48	0715	49	8507	6	1528	287	5020	289	1565	6	10
27 0	0.129661	48	0.130765	50	1.008513	6	7·71242	286	7·64732	288	0.991558	7	**33** 0
10	9709	48	0814	49	8520	7	0956	286	4443	289	1552	6	50
20	9757	48	0863	49	8526	6	0671	285	4155	288	1546	6	40
30	9805	48	0913	50	8533	7	0385	286	3868	287	1540	6	30
40	9853	48	0962	49	8539	6	7·70100	285	3580	288	1533	7	20
50	9901	48	1011	49	8545	6	7·69815	285	3293	287	1527	6	10
28 0	0.129949	48	0.131061	50	1.008552	7	7·69530	285	7·63005	288	0.991521	6	**32** 0
10	0.129997	48	1110	49	8558	6	9246	284	2718	287	1514	7	50
20	0.130046	49	1159	49	8565	7	8962	284	2432	286	1508	6	40
30	0094	48	1209	50	8571	6	8677	285	2145	287	1502	6	30
40	0142	48	1258	49	8578	7	8394	283	1859	286	1495	7	20
50	0190	48	1307	49	8584	6	8110	284	1573	286	1489	6	10
29 0	0.130238	48	0.131357	50	1.008590	6	7·67826	284	7·61287	286	0.991483	6	**31** 0
10	0286	48	1406	49	8597	7	7543	283	1001	286	1476	7	50
20	0334	48	1455	49	8603	6	7260	283	0715	286	1470	6	40
30	0382	48	1505	50	8610	7	6977	283	0430	285	1464	6	30
40	0430	48	1554	49	8616	6	6694	283	7·60145	285	1458	6	20
50	0478	48	1603	49	8623	7	6412	282	7·59860	285	1451	7	10
30 0	0.130526	48	0.131652	49	1.008629	6	7·66130	282	7·59575	285	0.991445	6	**30** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

272

1	27.2
2	54.4
3	81.6
4	108.8
5	136.0
6	163.2
7	190.4
8	217.6
9	244.8

276

1	27.6
2	55.2
3	82.8
4	110.4
5	138.0
6	165.6
7	193.2
8	220.8
9	248.4

280

1	28.0
2	56.0
3	84.0
4	112.0
5	140.0
6	168.0
7	196.0
8	224.0
9	252.0

284

1	28.4
2	56.8
3	85.2
4	113.6
5	142.0
6	170.4
7	198.8
8	227.2
9	255.6

289

1	28.9
2	57.8
3	86.7
4	115.6
5	144.5
6	173.4
7	202.3
8	231.2
9	260.1

295

1	29.5
2	59.0
3	88.5
4	118.0
5	147.5
6	177.0
7	206.5
8	236.0
9	265.5

82°

7°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.130526		0.131652		1.008629		7.66130		7·59575		0.991445		**30′** 0″
10	0574	48	1702	50	8635	6	5848	282	9291	284	1439	6	50
20	0622	48	1751	49	8642	7	5566	282	9007	284	1432	7	40
30	0670	48	1800	49	8648	6	5284	282	8723	284	1426	6	30
40	0718	48	1850	50	8655	7	5003	281	8439	284	1420	6	20
50	0767	49	1899	49	8661	6	4722	281	8155	284	1413	7	10
31 0	0.130815	48	0.131948	49	1.008668	7	7.64441	281	7·57872	283	0.991407	6	**29** 0
10	0863	48	1998	50	8674	6	4160	281	7589	283	1401	6	50
20	0911	48	2047	49	8681	7	3879	281	7306	283	1394	7	40
30	0959	48	2096	49	8687	6	3599	280	7023	283	1388	6	30
40	1007	48	2146	50	8693	6	3319	280	6740	283	1381	7	20
50	1055	48	2195	49	8700	7	3039	280	6458	282	1375	6	10
32 0	0.131103	48	0.132244	49	1.008706	6	7.62759	280	7·56176	282	0.991369	6	**28** 0
10	1151	48	2294	50	8713	7	2480	279	5894	282	1362	7	50
20	1199	48	2343	49	8719	6	2200	280	5612	282	1356	6	40
30	1247	48	2392	49	8726	7	1921	279	5330	282	1350	6	30
40	1295	48	2442	50	8732	6	1642	279	5049	281	1343	7	20
50	1343	48	2491	49	8739	7	1364	278	4768	281	1337	6	10
33 0	0.131391	48	0.132540	49	1.008745	6	7.61085	279	7·54487	281	0.991331	6	**27** 0
10	1439	48	2590	50	8752	7	0807	278	4206	281	1324	7	50
20	1487	48	2639	49	8758	6	0529	278	3926	280	1318	6	40
30	1536	49	2688	49	8765	7	7·60251	278	3645	281	1311	7	30
40	1584	48	2738	50	8771	6	7·59973	278	3365	280	1305	6	20
50	1632	48	2787	49	8778	7	9696	277	3085	280	1299	6	10
34 0	0.131680	48	0.132836	49	1.008784	6	7.59418	278	7·52806	279	0.991292	7	**26** 0
10	1728	48	2886	50	8791	7	9141	277	2526	280	1286	6	50
20	1776	48	2935	49	8797	6	8865	276	2247	279	1280	6	40
30	1824	48	2984	49	8804	7	8588	277	1968	279	1273	7	30
40	1872	48	3034	50	8810	6	8311	277	1689	279	1267	6	20
50	1920	48	3083	49	8817	7	8035	276	1410	279	1260	7	10
35 0	0.131968	48	0.133132	49	1.008823	6	7.57759	276	7·51132	278	0.991254	6	**25** 0
10	2016	48	3182	50	8830	7	7483	276	0853	279	1248	6	50
20	2064	48	3231	49	8836	6	7208	275	0575	278	1241	7	40
30	2112	48	3280	49	8843	7	6932	276	0298	277	1235	6	30
40	2160	48	3330	50	8849	6	6657	275	7·50020	278	1228	7	20
50	2208	48	3379	49	8856	7	6382	275	7·49742	278	1222	6	10
36 0	0.132256	48	0.133428	49	1.008862	6	7.56107	275	7·49465	277	0.991216	6	**24** 0
10	2304	48	3478	50	8869	7	5833	274	9188	277	1209	7	50
20	2353	49	3527	49	8875	6	5558	275	8911	277	1203	6	40
30	2401	48	3577	50	8882	7	5284	274	8635	276	1196	7	30
40	2449	48	3626	49	8888	6	5010	274	8358	277	1190	6	20
50	2497	48	3675	49	8895	7	4736	274	8082	276	1183	7	10
37 0	0.132545	48	0.133725	50	1.008902	7	7.54462	274	7·47806	276	0.991177	6	**23** 0
10	2593	48	3774	49	8908	6	4189	273	7530	276	1171	6	50
20	2641	48	3823	49	8915	7	3916	273	7254	276	1164	7	40
30	2689	48	3873	50	8921	6	3643	273	6979	275	1158	6	30
40	2737	48	3922	49	8928	7	3370	273	6704	275	1151	7	20
50	2785	48	3971	49	8934	6	3097	273	6428	276	1145	6	10
38 0	0.132833	48	0.134021	50	1.008941	7	7.52825	272	7·46154	274	0.991138	7	**22** 0
10	2881	48	4070	49	8947	6	2553	272	5879	275	1132	6	50
20	2929	48	4119	49	8954	7	2281	272	5604	275	1126	6	40
30	2977	48	4169	50	8960	6	2009	272	5330	274	1119	7	30
40	3025	48	4218	49	8967	7	1737	272	5056	274	1113	6	20
50	3073	48	4267	49	8974	7	1466	271	4782	274	1106	7	10
39 0	0.133121	48	0.134317	50	1.008980	6	7.51194	272	7·44509	273	0.991100	6	**21** 0
10	3169	48	4366	49	8987	7	0923	271	4235	274	1093	7	50
20	3217	48	4416	50	8993	6	0652	271	3962	273	1087	6	40
30	3265	48	4465	49	9000	7	0382	270	3689	273	1080	7	30
40	3314	49	4514	49	9006	6	7·50111	271	3416	273	1074	6	20
50	3362	48	4564	50	9013	7	7·49841	270	3143	273	1067	7	10
40 0	0.133410	48	0.134613	49	1.009020	7	7·49571	270	7·42871	272	0.991061	6	**20** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

270	
1	27.0
2	54.0
3	81.0
4	108.0
5	135.0
6	162.0
7	189.0
8	216.0
9	243.0

274	
1	27.4
2	54.8
3	82.2
4	109.6
5	137.0
6	164.4
7	191.8
8	219.2
9	246.6

278	
1	27.8
2	55.6
3	83.4
4	111.2
5	139.0
6	166.8
7	194.6
8	222.4
9	250.2

282	
1	28.2
2	56.4
3	84.6
4	112.8
5	141.0
6	169.2
7	197.4
8	225.6
9	253.8

286	
1	28.6
2	57.2
3	85.8
4	114.4
5	143.0
6	171.6
7	200.2
8	228.8
9	257.4

292	
1	29.2
2	58.4
3	87.6
4	116.8
5	146.0
6	175.2
7	204.4
8	233.6
9	262.8

298	
1	29.8
2	59.6
3	89.4
4	119.2
5	149.0
6	178.8
7	208.6
8	238.4
9	268.2

82°

7°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.133410		0.134613		1.009020		7·49571		7·42871		0.991061		**20′** 0″
10	3458	48	4662	49	9026	6	9301	270	2598	273	1055	6	50
20	3506	48	4712	50	9033	7	9032	269	2326	272	1048	7	40
30	3554	48	4761	49	9039	6	8762	270	2054	272	1042	6	30
40	3602	48	4810	49	9046	7	8493	269	1783	271	1035	7	20
50	3650	48	4860	50	9053	7	8224	269	1511	272	1029	6	10
41 0	0.133698	48	0.134909	49	1.009059	6	7·47955	269	7·41240	271	0.991022	7	**19** 0
10	3746	48	4958	49	9066	7	7686	269	0969	271	1016	6	50
20	3794	48	5008	50	9072	6	7418	268	0698	271	1009	7	40
30	3842	48	5057	49	9079	7	7149	269	0427	271	1003	6	30
40	3890	48	5107	50	9086	7	6881	268	7·40156	271	0996	7	20
50	3938	48	5156	49	9092	6	6613	268	7·39886	270	0990	6	10
42 0	0.133986	48	0.135205	49	1.009099	7	7·46346	267	7·39616	270	0.990983	7	**18** 0
10	4034	48	5255	50	9105	6	6078	268	9346	270	0977	6	50
20	4082	48	5304	49	9112	7	5811	267	9076	270	0970	7	40
30	4130	48	5353	49	9119	7	5544	267	8807	269	0964	6	30
40	4178	48	5403	50	9125	6	5277	267	8537	270	0957	7	20
50	4226	48	5452	49	9132	7	5010	267	8268	269	0951	6	10
43 0	0.134274	48	0.135502	50	1.009139	7	7·44743	266	7·37999	269	0.990944	7	**17** 0
10	4322	48	5551	49	9145	6	4477	266	7730	269	0938	6	50
20	4371	49	5600	49	9152	7	4211	266	7462	268	0931	7	40
30	4419	48	5650	50	9158	6	3945	266	7193	269	0925	6	30
40	4467	48	5699	49	9165	7	3679	266	6925	268	0918	7	20
50	4515	48	5748	49	9172	7	3413	266	6657	268	0912	6	10
44 0	0.134563	48	0.135798	50	1.009178	6	7·43148	265	7·36389	268	0.990905	7	**16** 0
10	4611	48	5847	49	9185	7	2883	265	6122	267	0899	6	50
20	4659	48	5897	50	9192	7	2618	265	5854	268	0892	7	40
30	4707	48	5946	49	9198	6	2353	265	5587	267	0886	6	30
40	4755	48	5995	49	9205	7	2088	265	5320	267	0879	7	20
50	4803	48	6045	50	9212	7	1824	264	5053	267	0872	7	10
45 0	0.134851	48	0.136094	49	1.009218	6	7·41560	264	7·34786	267	0.990866	6	**15** 0
10	4899	48	6143	49	9225	7	1296	264	4520	266	0859	7	50
20	4947	48	6193	50	9232	7	1032	264	4253	267	0853	6	40
30	4995	48	6242	49	9238	6	0768	264	3987	266	0846	7	30
40	5043	48	6292	50	9245	7	0504	264	3721	266	0840	6	20
50	5091	48	6341	49	9252	7	7·40241	263	3455	266	0833	7	10
46 0	0.135139	48	0.136390	49	1.009258	6	7·39978	263	7·33190	265	0.990827	6	**14** 0
10	5187	48	6440	50	9265	7	9715	263	2925	265	0820	7	50
20	5235	48	6489	49	9272	7	9452	263	2659	266	0814	6	40
30	5283	48	6538	49	9278	6	9190	262	2394	265	0807	7	30
40	5331	48	6588	50	9285	7	8927	263	2130	264	0800	7	20
50	5379	48	6637	49	9292	7	8665	262	1865	265	0794	6	10
47 0	0.135427	48	0.136687	50	1.009298	6	7·38403	262	7·31600	265	0.990787	7	**13** 0
10	5475	48	6736	49	9305	7	8141	262	1336	264	0781	6	50
20	5523	48	6785	49	9312	7	7880	261	1072	264	0774	7	40
30	5571	48	6835	50	9318	6	7618	262	0808	264	0768	6	30
40	5620	49	6884	49	9325	7	7357	261	0545	263	0761	7	20
50	5668	48	6934	50	9332	7	7096	261	0281	264	0754	7	10
48 0	0.135716	48	0.136983	49	1.009339	7	7·36835	261	7·30018	263	0.990748	6	**12** 0
10	5764	48	7032	49	9345	6	6574	261	7·29755	263	0741	7	50
20	5812	48	7082	50	9352	7	6314	260	9492	263	0735	6	40
30	5860	48	7131	49	9359	7	6054	260	9229	263	0728	7	30
40	5908	48	7181	50	9365	6	5793	261	8966	263	0722	6	20
50	5956	48	7230	49	9372	7	5534	259	8704	262	0715	7	10
49 0	0.136004	48	0.137279	49	1.009379	7	7·35274	260	7·28442	262	0.990708	7	**11** 0
10	6052	48	7329	50	9386	7	5014	260	8180	262	0702	6	50
20	6100	48	7378	49	9392	6	4755	259	7918	262	0695	7	40
30	6148	48	7428	50	9399	7	4496	259	7656	262	0689	6	30
40	6196	48	7477	49	9406	7	4237	259	7395	261	0682	7	20
50	6244	48	7526	49	9412	6	3978	259	7134	261	0675	7	10
50 0	0.136292	48	0.137576	50	1.009419	7	7·33719	259	7·26873	261	0.990669	6	**10** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

250

1	25.0
2	50.0
3	75.0
4	100.0
5	125.0
6	150.0
7	175.0
8	200.0
9	225.0

254

1	25.4
2	50.8
3	76.2
4	101.6
5	127.0
6	152.4
7	177.8
8	203.2
9	228.6

258

1	25.8
2	51.6
3	77.4
4	103.2
5	129.0
6	154.8
7	180.6
8	206.4
9	232.2

262

1	26.2
2	52.4
3	78.6
4	104.8
5	131.0
6	157.2
7	183.4
8	209.6
9	235.8

266

1	26.6
2	53.2
3	79.8
4	106.4
5	133.0
6	159.6
7	186.2
8	212.8
9	239.4

270

1	27.0
2	54.0
3	81.0
4	108.0
5	135.0
6	162.0
7	189.0
8	216.0
9	243.0

82°

7°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.136292		0.137576		1.009419		7.33719		7.26873		0.990669		**10′** 0″
10	6340	48	7625	49	9426	7	3461	258	6612	261	0662	7	50
20	6388	48	7675	50	9433	7	3202	259	6351	261	0655	7	40
30	6436	48	7724	49	9439	6	2944	258	6090	261	0649	6	30
40	6484	48	7773	49	9446	7	2686	258	5830	260	0642	7	20
50	6532	48	7823	50	9453	7	2429	257	5570	260	0636	6	10
51 0	0.136580	48	0.137872	49	1.009460	7	7.32171	258	7.25310	260	0.990629	7	**9** 0
10	6628	48	7922	50	9466	6	1914	257	5050	260	0622	7	50
20	6676	48	7971	49	9473	7	1656	258	4790	260	0616	6	40
30	6724	48	8020	49	9480	7	1399	257	4531	259	0609	7	30
40	6772	48	8070	50	9487	7	1143	256	4272	259	0603	6	20
50	6820	48	8119	49	9493	6	0886	257	4013	259	0596	7	10
52 0	0.136868	48	0.138169	50	1.009500	7	7.30630	256	7.23754	259	0.990589	7	**8** 0
10	6916	48	8218	49	9507	7	0373	257	3495	259	0583	6	50
20	6964	48	8267	49	9514	7	7.30117	256	3237	258	0576	7	40
30	7012	48	8317	50	9520	6	7.29861	256	2978	259	0569	7	30
40	7060	48	8366	49	9527	7	9606	255	2720	258	0563	6	20
50	7108	48	8416	50	9534	7	9350	256	2462	258	0556	7	10
53 0	0.137156	48	0.138465	49	1.009541	7	7.29095	255	7.22204	258	0.990549	7	**7** 0
10	7204	48	8514	49	9548	7	8839	256	1947	257	0543	6	50
20	7252	48	8564	50	9554	6	8584	255	1689	258	0536	7	40
30	7300	48	8613	49	9561	7	8330	254	1432	257	0529	7	30
40	7349	49	8663	50	9568	7	8075	255	1175	257	0523	6	20
50	7397	48	8712	49	9575	7	7820	255	0918	257	0516	7	10
54 0	0.137445	48	0.138761	49	1.009581	6	7.27566	254	7.20661	257	0.990509	7	**6** 0
10	7493	48	8811	50	9588	7	7312	254	0405	256	0503	6	50
20	7541	48	8860	49	9595	7	7058	254	7.20148	257	0496	7	40
30	7589	48	8910	50	9602	7	6804	254	7.19892	256	0489	7	30
40	7637	48	8959	49	9609	7	6551	253	9636	256	0483	6	20
50	7685	48	9009	50	9615	6	6297	254	9380	256	0476	7	10
55 0	0.137733	48	0.139058	49	1.009622	7	7.26044	253	7.19125	255	0.990469	7	**5** 0
10	7781	48	9107	49	9629	7	5791	253	8869	256	0463	6	50
20	7829	48	9157	50	9636	7	5538	253	8614	255	0456	7	40
30	7877	48	9206	49	9643	7	5286	252	8359	255	0449	7	30
40	7925	48	9256	50	9650	7	5033	253	8104	255	0443	6	20
50	7973	48	9305	49	9656	6	4781	252	7849	255	0436	7	10
56 0	0.138021	48	0.139354	49	1.009663	7	7.24529	252	7.17594	255	0.990429	7	**4** 0
10	8069	48	9404	50	9670	7	4277	252	7340	254	0423	6	50
20	8117	48	9453	49	9677	7	4025	252	7086	254	0416	7	40
30	8165	48	9503	50	9684	7	3773	252	6832	254	0409	7	30
40	8213	48	9552	49	9690	6	3522	251	6578	254	0403	6	20
50	8261	48	9602	50	9697	7	3270	252	6324	254	0396	7	10
57 0	0.138309	48	0.139651	49	1.009704	7	7.23019	251	7.16071	253	0.990389	7	**3** 0
10	8357	48	9700	49	9711	7	2768	251	5817	254	0382	7	50
20	8405	48	9750	50	9718	7	2518	250	5564	253	0376	6	40
30	8453	48	9799	49	9725	7	2267	251	5311	253	0369	7	30
40	8501	48	9849	50	9731	6	2017	250	5058	253	0362	7	20
50	8549	48	9898	49	9738	7	1767	250	4806	252	0356	6	10
58 0	0.138597	48	0.139948	50	1.009745	7	7.21517	250	7.14553	253	0.990349	7	**2** 0
10	8645	48	0.139997	49	9752	7	1267	250	4301	252	0342	7	50
20	8693	48	0.140046	49	9759	7	1017	250	4049	252	0335	7	40
30	8741	48	0096	50	9766	7	0767	250	3797	252	0329	6	30
40	8789	48	0145	49	9773	7	0518	249	3545	252	0322	7	20
50	8837	48	0195	50	9779	6	0269	249	3293	252	0315	7	10
59 0	0.138885	48	0.140244	49	1.009786	7	7.20020	249	7.13042	251	0.990309	6	**1** 0
10	8933	48	0294	50	9793	7	7.19771	249	2791	251	0302	7	50
20	8981	48	0343	49	9800	7	9523	248	2540	251	0295	7	40
30	9029	48	0393	50	9807	7	9274	249	2289	251	0288	7	30
40	9077	48	0442	49	9814	7	9026	248	2038	251	0282	6	20
50	9125	48	0491	49	9821	7	8778	248	1787	251	0275	7	10
60 0	0.139173	48	0.140541	50	1.009828	7	7.18530	248	7.11537	250	0.990268	7	**0** 0
	cos		cotg		cosec		sec		tang		sin		

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

248	
1	24.8
2	49.6
3	74.4
4	99.2
5	124.0
6	148.8
7	173.6
8	198.4
9	223.2

252	
1	25.2
2	50.4
3	75.6
4	100.8
5	126.0
6	151.2
7	176.4
8	201.6
9	226.8

256	
1	25.6
2	51.2
3	76.8
4	102.4
5	128.0
6	153.6
7	179.2
8	204.8
9	230.4

260	
1	26.0
2	52.0
3	78.0
4	104.0
5	130.0
6	156.0
7	182.0
8	208.0
9	234.0

264	
1	26.4
2	52.8
3	79.2
4	105.6
5	132.0
6	158.4
7	184.8
8	211.2
9	237.6

268	
1	26.8
2	53.6
3	80.4
4	107.2
5	134.0
6	160.8
7	187.6
8	214.4
9	241.2

273	
1	27.3
2	54.6
3	81.9
4	109.2
5	136.5
6	163.8
7	191.1
8	218.4
9	245.7

82°

8°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.139173		0.140541		1.009828		7.18530		7.11537		0.990268		**60′** 0″
10	9221	48	0590	49	9834	6	8282	248	1287	250	0261	7	50
20	9269	48	0640	50	9841	7	8034	248	1037	250	0255	6	40
30	9317	48	0689	49	9848	7	7787	247	0787	250	0248	7	30
40	9365	48	0739	50	9855	7	7540	247	0537	250	0241	7	20
50	9413	48	0788	49	9862	7	7292	248	0288	249	0234	7	10
1 0	0.139461	48	0.140837	49	1.009869	7	7.17046	246	7.10038	250	0.990228	6	**59** 0
10	9509	48	0887	50	9876	7	6799	247	7.09789	249	0221	7	50
20	9557	48	0936	49	9883	7	6552	247	9540	249	0214	7	40
30	9605	48	0986	50	9890	7	6306	246	9291	249	0207	7	30
40	9653	48	1035	49	9897	7	6060	246	9043	248	0200	7	20
50	9701	48	1085	50	9903	6	5814	246	8794	249	0194	6	10
2 0	0.139749	48	0.141134	49	1.009910	7	7.15568	246	7.08546	248	0.990187	7	**58** 0
10	9797	48	1184	50	9917	7	5322	246	8298	248	0180	7	50
20	9845	48	1233	49	9924	7	5076	246	8050	248	0173	7	40
30	9893	48	1282	49	9931	7	4831	245	7802	248	0167	6	30
40	9941	48	1332	50	9938	7	4586	245	7554	248	0160	7	20
50	0.139989	48	1381	49	9945	7	4341	245	7307	247	0153	7	10
3 0	0.140037	48	0.141431	50	1.009952	7	7.14096	245	7.07059	248	0.990146	7	**57** 0
10	0085	48	1480	49	9959	7	3851	245	6812	247	0139	7	50
20	0133	48	1530	50	9966	7	3607	244	6565	247	0133	6	40
30	0181	48	1579	49	9973	7	3362	245	6318	247	0126	7	30
40	0229	48	1629	50	9980	7	3118	244	6072	246	0119	7	20
50	0277	48	1678	49	9986	6	2874	244	5825	247	0112	7	10
4 0	0.140325	48	0.141728	50	1.009993	7	7.12630	244	7.05579	246	0.990105	7	**56** 0
10	0373	48	1777	49	1.010000	7	2387	243	5333	246	0099	6	50
20	0421	48	1826	49	0007	7	2143	244	5087	246	0092	7	40
30	0469	48	1876	50	0014	7	1900	243	4841	246	0085	7	30
40	0517	48	1925	49	0021	7	1656	244	4596	245	0078	7	20
50	0565	48	1975	50	0028	7	1413	243	4350	246	0071	7	10
5 0	0.140613	48	0.142024	49	1.010035	7	7.11171	242	7.04105	245	0.990065	6	**55** 0
10	0661	48	2074	50	0042	7	0928	243	3860	245	0058	7	50
20	0709	48	2123	49	0049	7	0685	243	3615	245	0051	7	40
30	0757	48	2173	50	0056	7	0443	242	3370	245	0044	7	30
40	0805	48	2222	49	0063	7	7.10201	242	3125	245	0037	7	20
50	0853	48	2272	50	0070	7	7.09959	242	2881	244	0030	7	10
6 0	0.140901	48	0.142321	49	1.010077	7	7.09717	242	7.02637	244	0.990024	6	**54** 0
10	0949	48	2371	50	0084	7	9475	242	2393	244	0017	7	50
20	0997	48	2420	49	0091	7	9234	241	2149	244	0010	7	40
30	1045	48	2469	49	0098	7	8992	242	1905	244	0.990003	7	30
40	1093	48	2519	50	0105	7	8751	241	1661	244	0.989996	7	20
50	1141	48	2568	49	0112	7	8510	241	1418	243	9989	7	10
7 0	0.141189	48	0.142618	50	1.010119	7	7.08269	241	7.01174	244	0.989983	6	**53** 0
10	1237	48	2667	49	0126	7	8029	240	0931	243	9976	7	50
20	1285	48	2717	50	0133	7	7788	241	0688	243	9969	7	40
30	1333	48	2766	49	0140	7	7548	240	0446	242	9962	7	30
40	1381	48	2816	50	0147	7	7308	240	7.00203	243	9955	7	20
50	1429	48	2865	49	0154	7	7068	240	6.99960	243	9948	7	10
8 0	0.141477	48	0.142915	50	1.010161	7	7.06828	240	6.99718	242	0.989942	6	**52** 0
10	1525	48	2964	49	0168	7	6588	240	9476	242	9935	7	50
20	1573	48	3014	50	0175	7	6349	239	9234	242	9928	7	40
30	1621	48	3063	49	0182	7	6109	240	8992	242	9921	7	30
40	1669	48	3113	50	0189	7	5870	239	8751	241	9914	7	20
50	1717	48	3162	49	0196	7	5631	239	8509	242	9907	7	10
9 0	0.141765	48	0.143212	50	1.010203	7	7.05392	239	6.98268	241	0.989900	7	**51** 0
10	1813	48	3261	49	0210	7	5153	239	8027	241	9893	7	50
20	1861	48	3310	49	0217	7	4915	238	7786	241	9887	6	40
30	1909	48	3360	50	0224	7	4676	239	7545	241	9880	7	30
40	1957	48	3409	49	0231	7	4438	238	7304	241	9873	7	20
50	2005	48	3459	50	0238	7	4200	238	7064	240	9866	7	10
10 0	0.142053	48	0.143508	49	1.010245	7	7.03962	238	6.96823	241	0.989859	7	**50** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

228

1	22.8
2	45.6
3	68.4
4	91.2
5	114.0
6	136.8
7	159.6
8	182.4
9	205.2

232

1	23.2
2	46.4
3	69.6
4	92.8
5	116.0
6	139.2
7	162.4
8	185.6
9	208.8

236

1	23.6
2	47.2
3	70.8
4	94.4
5	118.0
6	141.6
7	165.2
8	188.8
9	212.4

240

1	24.0
2	48.0
3	72.0
4	96.0
5	120.0
6	144.0
7	168.0
8	192.0
9	216.0

244

1	24.4
2	48.8
3	73.2
4	97.6
5	122.0
6	146.4
7	170.8
8	195.2
9	219.6

248

1	24.8
2	49.6
3	74.4
4	99.2
5	124.0
6	148.8
7	173.6
8	198.4
9	223.2

81°

8°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.142053		0.143508		1.010245		7.03962		6.96823		0.989859		**50′** 0″
10	2101	48	3558	50	0252	7	3724	238	6583	240	9852	7	50
20	2149	48	3607	49	0259	7	3487	237	6343	240	9845	7	40
30	2197	48	3657	50	0266	7	3249	238	6103	240	9838	7	30
40	2245	48	3706	49	0273	7	3012	237	5864	239	9831	7	20
50	2293	48	3756	50	0280	7	2775	237	5624	240	9825	6	10
11 0	0.142341	48	0.143805	49	1.010287	7	7.02538	237	6.95385	239	0.989818	7	**49** 0
10	2389	48	3855	50	0294	7	2301	237	5146	239	9811	7	50
20	2437	48	3904	49	0301	7	2065	236	4906	240	9804	7	40
30	2485	48	3954	50	0308	7	1828	237	4668	238	9797	7	30
40	2533	48	4003	49	0315	7	1592	236	4429	239	9790	7	20
50	2581	48	4053	50	0322	7	1356	236	4190	239	9783	7	10
12 0	0.142629	48	0.144102	49	1.010329	7	7.01120	236	6.93952	238	0.989776	7	**48** 0
10	2677	48	4152	50	0336	7	0884	236	3714	238	9769	7	50
20	2725	48	4201	49	0343	7	0649	235	3476	238	9762	7	40
30	2773	48	4251	50	0351	8	0413	236	3238	238	9755	7	30
40	2821	48	4300	49	0358	7	7.00178	235	3000	238	9749	6	20
50	2869	48	4350	50	0365	7	6.99943	235	2762	238	9742	7	10
13 0	0.142917	48	0.144399	49	1.010372	7	6.99708	235	6.92525	237	0.989735	7	**47** 0
10	2965	48	4449	50	0379	7	9473	235	2288	237	9728	7	50
20	3013	48	4498	49	0386	7	9238	235	2050	238	9721	7	40
30	3061	48	4548	50	0393	7	9004	234	1814	236	9714	7	30
40	3109	48	4597	49	0400	7	8769	235	1577	237	9707	7	20
50	3157	48	4647	50	0407	7	8535	234	1340	237	9700	7	10
14 0	0.143205	48	0.144696	49	1.010414	7	6.98301	234	6.91104	236	0.989693	7	**46** 0
10	3253	48	4746	50	0421	7	8067	234	0867	237	9686	7	50
20	3301	48	4795	49	0428	7	7833	234	0631	236	9679	7	40
30	3349	48	4845	50	0436	8	7600	233	0395	236	9672	7	30
40	3397	48	4894	49	0443	7	7366	234	6.90159	236	9665	7	20
50	3445	48	4944	50	0450	7	7133	233	6.89924	235	9658	7	10
15 0	0.143493	48	0.144993	49	1.010457	7	6.96900	233	6.89688	236	0.989651	7	**45** 0
10	3541	48	5043	50	0464	7	6667	233	9453	235	9644	7	50
20	3589	48	5092	49	0471	7	6434	233	9217	236	9637	7	40
30	3637	48	5142	50	0478	7	6202	232	8982	235	9631	6	30
40	3685	48	5191	49	0485	7	5969	233	8747	235	9624	7	20
50	3733	48	5241	50	0492	7	5737	232	8513	234	9617	7	10
16 0	0.143780	47	0.145290	49	1.010499	7	6.95505	232	6.88278	235	0.989610	7	**44** 0
10	3828	48	5340	50	0507	8	5273	232	8044	234	9603	7	50
20	3876	48	5389	49	0514	7	5041	232	7809	235	9596	7	40
30	3924	48	5439	50	0521	7	4809	232	7575	234	9589	7	30
40	3972	48	5488	49	0528	7	4578	231	7341	234	9582	7	20
50	4020	48	5538	50	0535	7	4346	232	7107	234	9575	7	10
17 0	0.144068	48	0.145587	49	1.010542	7	6.94115	231	6.86874	233	0.989568	7	**43** 0
10	4116	48	5637	50	0549	7	3884	231	6640	234	9561	7	50
20	4164	48	5686	49	0557	8	3653	231	6407	233	9554	7	40
30	4212	48	5736	50	0564	7	3422	231	6174	233	9547	7	30
40	4260	48	5785	49	0571	7	3192	230	5941	233	9540	7	20
50	4308	48	5835	50	0578	7	2961	231	5708	233	9533	7	10
18 0	0.144356	48	0.145884	49	1.010585	7	6.92731	230	6.85475	233	0.989526	7	**42** 0
10	4404	48	5934	50	0592	7	2501	230	5243	232	9519	7	50
20	4452	48	5983	49	0599	7	2271	230	5010	233	9512	7	40
30	4500	48	6033	50	0607	8	2041	230	4778	232	9505	7	30
40	4548	48	6082	49	0614	7	1811	230	4546	232	9498	7	20
50	4596	48	6132	50	0621	7	1582	229	4314	232	9491	7	10
19 0	0.144644	48	0.146181	49	1.010628	7	6.91352	230	6.84082	232	0.989484	7	**41** 0
10	4692	48	6231	50	0635	7	1123	229	3850	232	9477	7	50
20	4740	48	6280	49	0642	7	0894	229	3619	231	9470	7	40
30	4788	48	6330	50	0650	8	0665	229	3387	232	9463	7	30
40	4836	48	6379	49	0657	7	0436	229	3156	231	9456	7	20
50	4884	48	6429	50	0664	7	6.90208	228	2925	231	9449	7	10
20 0	0.144932	48	0.146478	49	1.010671	7	6.89979	229	6.82694	231	0.989442	7	**40** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

230	
1	23.0
2	46.0
3	69.0
4	92.0
5	115.0
6	138.0
7	161.0
8	184.0
9	207.0

234	
1	23.4
2	46.8
3	70.2
4	93.6
5	117.0
6	140.4
7	163.8
8	187.2
9	210.6

238	
1	23.8
2	47.6
3	71.4
4	95.2
5	119.0
6	142.8
7	166.6
8	190.4
9	214.2

242	
1	24.2
2	48.4
3	72.6
4	96.8
5	121.0
6	145.2
7	169.4
8	193.6
9	217.8

246	
1	24.6
2	49.2
3	73.8
4	98.4
5	123.0
6	147.6
7	172.2
8	196.8
9	221.4

250	
1	25.0
2	50.0
3	75.0
4	100.0
5	125.0
6	150.0
7	175.0
8	200.0
9	225.0

81°

8°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.144932		0.146478		1.010671		6.89979		6.82694		0.989442		**40′** 0″
10	4980	48	6528	50	0678	7	9751	228	2464	230	9435	7	50
20	5028	48	6577	49	0685	7	9523	228	2233	231	9428	7	40
30	5076	48	6627	50	0693	8	9295	228	2003	230	9421	7	30
40	5124	48	6677	50	0700	7	9067	228	1772	231	9414	7	20
50	5172	48	6726	49	0707	7	8839	228	1542	230	9406	8	10
21 0	0.145220	48	0.146776	50	1.010714	7	6.88612	227	6.81312	230	0.989399	7	**39** 0
10	5268	48	6825	49	0721	7	8385	227	1082	230	9392	7	50
20	5316	48	6875	50	0729	8	8157	228	0853	229	9385	7	40
30	5364	48	6924	49	0736	7	7930	227	0623	230	9378	7	30
40	5412	48	6974	50	0743	7	7703	227	0394	229	9371	7	20
50	5460	48	7023	49	0750	7	7477	226	6.80165	229	9364	7	10
22 0	0.145507	47	0.147073	50	1.010757	7	6.87250	227	6.79936	229	0.989357	7	**38** 0
10	5555	48	7122	49	0765	8	7023	227	9707	229	9350	7	50
20	5603	48	7172	50	0772	7	6797	226	9478	229	9343	7	40
30	5651	48	7221	49	0779	7	6571	226	9249	229	9336	7	30
40	5699	48	7271	50	0786	7	6345	226	9021	228	9329	7	20
50	5747	48	7320	49	0793	7	6119	226	8793	228	9322	7	10
23 0	0.145795	48	0.147370	50	1.010801	8	6.85893	225	6.78564	229	0.989315	7	**37** 0
10	5843	48	7419	49	0808	7	5668	226	8336	228	9308	7	50
20	5891	48	7469	50	0815	7	5442	225	8109	227	9301	7	40
30	5939	48	7519	50	0822	7	5217	225	7881	228	9294	7	30
40	5987	48	7568	49	0830	8	4992	225	7653	228	9286	8	20
50	6035	48	7618	50	0837	7	4767	225	7426	227	9279	7	10
24 0	0.146083	48	0.147667	49	1.010844	7	6.84542	225	6.77199	227	0.989272	7	**36** 0
10	6131	48	7717	50	0851	7	4318	224	6972	227	9265	7	50
20	6179	48	7766	49	0858	7	4093	225	6745	227	9258	7	40
30	6227	48	7816	50	0866	8	3869	224	6518	227	9251	7	30
40	6275	48	7865	49	0873	7	3644	225	6291	227	9244	7	20
50	6323	48	7915	50	0880	7	3420	224	6065	226	9237	7	10
25 0	0.146371	48	0.147964	49	1.010887	7	6.83196	224	6.75838	227	0.989230	7	**35** 0
10	6419	48	8014	50	0895	8	2973	223	5612	226	9223	7	50
20	6467	48	8063	49	0902	7	2749	224	5386	226	9216	7	40
30	6515	48	8113	50	0909	7	2526	223	5160	226	9208	8	30
40	6563	48	8163	50	0916	7	2302	224	4934	226	9201	7	20
50	6611	48	8212	49	0924	8	2079	223	4709	225	9194	7	10
26 0	0.146659	48	0.148262	50	1.010931	7	6.81856	223	6.74483	226	0.989187	7	**34** 0
10	6706	47	8311	49	0938	7	1633	223	4258	225	9180	7	50
20	6754	48	8361	50	0946	8	1410	223	4033	225	9173	7	40
30	6802	48	8410	49	0953	7	1188	222	3808	225	9166	7	30
40	6850	48	8460	50	0960	7	0965	223	3583	225	9159	7	20
50	6898	48	8509	49	0967	7	0743	222	3358	225	9152	7	10
27 0	0.146946	48	0.148559	50	1.010975	8	6.80521	222	6.73133	225	0.989144	8	**33** 0
10	6994	48	8609	50	0982	7	0299	222	2909	224	9137	7	50
20	7042	48	8658	49	0989	7	6.80077	222	2685	224	9130	7	40
30	7090	48	8708	50	0997	8	6.79855	222	2461	224	9123	7	30
40	7138	48	8757	49	1004	7	9634	221	2236	225	9116	7	20
50	7186	48	8807	50	1011	7	9412	222	2013	223	9109	7	10
28 0	0.147234	48	0.148856	49	1.011018	7	6.79191	221	6.71789	224	0.989102	7	**32** 0
10	7282	48	8906	50	1026	8	8970	221	1565	224	9095	7	50
20	7330	48	8955	49	1033	7	8749	221	1342	223	9087	8	40
30	7378	48	9005	50	1040	7	8528	221	1119	223	9080	7	30
40	7426	48	9055	50	1048	8	8307	221	0895	224	9073	7	20
50	7474	48	9104	49	1055	7	8087	220	0673	222	9066	7	10
29 0	0.147522	48	0.149154	50	1.011062	7	6.77866	221	6.70450	223	0.989059	7	**31** 0
10	7570	48	9203	49	1070	8	7646	220	0227	223	9052	7	50
20	7618	48	9253	50	1077	7	7426	220	6.70004	223	9045	7	40
30	7666	48	9302	49	1084	7	7206	220	6.69782	222	9037	8	30
40	7714	48	9352	50	1091	7	6986	220	9560	222	9030	7	20
50	7761	47	9401	49	1099	8	6766	220	9338	222	9023	7	10
30 0	0.147809	48	0.149451	50	1.011106	7	6.76547	219	6.69116	222	0.989016	7	**30** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

211

1	21.1
2	42.2
3	63.3
4	84.4
5	105.5
6	126.6
7	147.7
8	168.8
9	189.9

213

1	21.3
2	42.6
3	63.9
4	85.2
5	106.5
6	127.8
7	149.1
8	170.4
9	191.7

217

1	21.7
2	43.4
3	65.1
4	86.8
5	108.5
6	130.2
7	151.9
8	173.6
9	195.3

221

1	22.1
2	44.2
3	66.3
4	88.4
5	110.5
6	132.6
7	154.7
8	176.8
9	198.9

225

1	22.5
2	45.0
3	67.5
4	90.0
5	112.5
6	135.0
7	157.5
8	180.0
9	202.5

229

1	22.9
2	45.8
3	68.7
4	91.6
5	114.5
6	137.4
7	160.3
8	183.2
9	206.1

81°

8°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.147809		0.149451		1.011106		6.76547		6.69116		0.989016		**30′** 0″
10	7857	48	9501	50	1113	7	6328	219	8894	222	9009	7	50
20	7905	48	9550	49	1121	8	6108	220	8672	222	9002	7	40
30	7953	48	9600	50	1128	7	5889	219	8451	221	8994	8	30
40	8001	48	9649	49	1135	7	5670	219	8229	222	8987	7	20
50	8049	48	9699	50	1143	8	5451	219	8008	221	8980	7	10
31 0	0.148097	48	0.149748	49	1.011150	7	6.75233	218	6.67787	221	0.988973	7	**29** 0
10	8145	48	9798	50	1157	7	5014	219	7566	221	8966	7	50
20	8193	48	9848	50	1165	8	4796	218	7345	221	8958	8	40
30	8241	48	9897	49	1172	7	4577	219	7124	221	8951	7	30
40	8289	48	9947	50	1180	8	4359	218	6904	220	8944	7	20
50	8337	48	0.149996	49	1187	7	4141	218	6683	221	8937	7	10
32 0	0.148385	48	0.150046	50	1.011194	7	6.73924	217	6.66463	220	0.988930	7	**28** 0
10	8433	48	0095	49	1202	8	3706	218	6243	220	8923	7	50
20	8481	48	0145	50	1209	7	3488	218	6023	220	8915	8	40
30	8529	48	0195	50	1216	7	3271	217	5803	220	8908	7	30
40	8577	48	0244	49	1224	8	3054	217	5583	220	8901	7	20
50	8624	47	0294	50	1231	7	2837	217	5364	219	8894	7	10
33 0	0.148672	48	0.150343	49	1.011238	7	6.72620	217	6.65144	220	0.988886	8	**27** 0
10	8720	48	0393	50	1246	8	2403	217	4925	219	8879	7	50
20	8768	48	0442	49	1253	7	2186	217	4706	219	8872	7	40
30	8816	48	0492	50	1261	8	1970	216	4487	219	8865	7	30
40	8864	48	0542	50	1268	7	1753	217	4268	219	8858	7	20
50	8912	48	0591	49	1275	7	1537	216	4050	218	8850	8	10
34 0	0.148960	48	0.150641	50	1.011283	8	6.71321	216	6.63831	219	0.988843	7	**26** 0
10	9008	48	0690	49	1290	7	1105	216	3613	218	8836	7	50
20	9056	48	0740	50	1297	7	0889	216	3394	219	8829	7	40
30	9104	48	0789	49	1305	8	0673	216	3176	218	8822	7	30
40	9152	48	0839	50	1312	7	0458	215	2958	218	8814	8	20
50	9200	48	0889	50	1320	8	0242	216	2740	218	8807	7	10
35 0	0.149248	48	0.150938	49	1.011327	7	6.70027	215	6.62523	217	0.988800	7	**25** 0
10	9296	48	0988	50	1334	7	6.69812	215	2305	218	8793	7	50
20	9344	48	1037	49	1342	8	9597	215	2088	217	8785	8	40
30	9392	48	1087	50	1349	7	9382	215	1870	218	8778	7	30
40	9439	47	1137	50	1357	8	9167	215	1653	217	8771	7	20
50	9487	48	1186	49	1364	7	8953	214	1436	217	8764	7	10
36 0	0.149535	48	0.151236	50	1.011371	7	6.68738	215	6.61219	217	0.988756	8	**24** 0
10	9583	48	1285	49	1379	8	8524	214	1002	217	8749	7	50
20	9631	48	1335	50	1386	7	8310	214	0786	216	8742	7	40
30	9679	48	1385	50	1394	8	8096	214	0569	217	8735	7	30
40	9727	48	1434	49	1401	7	7882	214	0353	216	8727	8	20
50	9775	48	1484	50	1409	8	7668	214	6.60137	216	8720	7	10
37 0	0.149823	48	0.151533	49	1.011416	7	6.67454	214	6.59921	216	0.988713	7	**23** 0
10	9871	48	1583	50	1423	7	7241	213	9705	216	8706	7	50
20	9919	48	1633	50	1431	8	7028	213	9489	216	8698	8	40
30	0.149967	48	1682	49	1438	7	6814	214	9273	216	8691	7	30
40	0.150015	48	1732	50	1446	8	6601	213	9058	215	8684	7	20
50	0063	48	1781	49	1453	7	6388	213	8843	215	8676	8	10
38 0	0.150111	47	0.151831	50	1.011461	8	6.66176	212	6.58627	216	0.98869	7	**22** 0
10	0158	48	1881	49	1468	7	5963	213	8412	215	8662	7	50
20	0206	48	1930	50	1476	8	5751	212	8197	215	8655	7	40
30	0254	48	1980	49	1483	7	5538	213	7983	214	8647	8	30
40	0302	48	2029	50	1490	7	5326	212	7768	215	8640	7	20
50	0350	48	2079	50	1498	8	5114	212	7553	215	8633	7	10
39 0	0.150398	48	0.152129	50	1.011505	7	6.64902	212	6.57339	214	0.988626	7	**21** 0
10	0446	48	2178	49	1513	8	4690	212	7125	214	8618	8	50
20	0494	48	2228	50	1520	7	4478	212	6911	214	8611	7	40
30	0542	48	2277	49	1528	8	4267	211	6697	214	8604	7	30
40	0590	48	2327	50	1535	7	4055	212	6483	214	8596	8	20
50	0638	48	2377	50	1543	8	3844	211	6269	214	8589	7	10
40 0	0.150686	48	0.152426	49	1.011550	7	6.63633	211	6.56055	214	0.988582	7	**20** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

212	
1	21.2
2	42.4
3	63.6
4	84.8
5	106.0
6	127.2
7	148.4
8	169.6
9	190.8

215	
1	21.5
2	43.0
3	64.5
4	86.0
5	107.5
6	129.0
7	150.5
8	172.0
9	193.5

219	
1	21.9
2	43.8
3	65.7
4	87.6
5	109.5
6	131.4
7	153.3
8	175.2
9	197.1

223	
1	22.3
2	44.6
3	66.9
4	89.2
5	111.5
6	133.8
7	156.1
8	178.4
9	200.7

227	
1	22.7
2	45.4
3	68.1
4	90.8
5	113.5
6	136.2
7	158.9
8	181.6
9	204.3

231	
1	23.1
2	46.2
3	69.3
4	92.4
5	115.5
6	138.6
7	161.7
8	184.8
9	207.9

81°

8°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.150686	48	0.152426	50	1.011550	8	6.63633	211	6.56055	213	0.988582	8	**20′** 0″
10	0734	48	2476	49	1558	7	3422	211	5842	213	8574	7	50
20	0782	47	2525	50	1565	8	3211	211	5629	214	8567	7	40
30	0829	48	2575	50	1573	7	3000	210	5415	213	8560	8	30
40	0877	48	2625	49	1580	8	2790	211	5202	213	8552	7	20
50	0925		2674		1588		2579		4989		8545		10
41 0	0.150973	48	0.152724	50	1.011595	7	6.62369	210	6.54777	212	0.988538	7	**19** 0
10	1021	48	2773	49	1603	8	2159	210	4564	213	8531	7	50
20	1069	48	2823	50	1610	7	1949	210	4352	212	8523	8	40
30	1117	48	2873	50	1618	8	1739	210	4139	213	8516	7	30
40	1165	48	2922	49	1625	7	1529	210	3927	212	8509	7	20
50	1213		2972		1633		1319		3715		8501		10
42 0	0.151261	48	0.153022	50	1.011640	7	6.61110	209	6.53503	212	0.988494	7	**18** 0
10	1309	48	3071	49	1648	8	0900	210	3291	212	8487	7	50
20	1357	48	3121	50	1655	7	0691	209	3079	212	8479	8	40
30	1405	48	3170	49	1663	8	0482	209	2868	211	8472	7	30
40	1453	48	3220	50	1670	7	0273	209	2656	212	8465	7	20
50	1500	47	3270	50	1678	8	6.60064	209	2445	211	8457	8	10
43 0	0.151548	48	0.153319	49	1.011685	7	6.59855	209	6.52234	211	0.988450	7	**17** 0
10	1596	48	3369	50	1693	8	9647	208	2023	211	8442	8	50
20	1644	48	3418	49	1700	7	9438	209	1812	211	8435	7	40
30	1692	48	3468	50	1708	8	9230	208	1601	211	8428	7	30
40	1740	48	3518	50	1715	7	9022	208	1391	210	8420	8	20
50	1788	48	3567	49	1723	8	8814	208	1180	211	8413	7	10
44 0	0.151836	48	0.153617	50	1.011730	7	6.58606	208	6.50970	210	0.988406	7	**16** 0
10	1884	48	3667	50	1738	8	8398	208	0760	210	8398	8	50
20	1932	48	3716	49	1745	7	8190	208	0549	211	8391	7	40
30	1980	48	3766	50	1753	8	7983	207	0340	209	8384	7	30
40	2028	48	3815	49	1760	7	7776	207	6.50130	210	8376	8	20
50	2075	47	3865	50	1768	8	7568	208	6.49920	210	8369	7	10
45 0	0.152123	48	0.153915	50	1.011776	8	6.57361	207	6.49710	210	0.988362	7	**15** 0
10	2171	48	3964	49	1783	7	7154	207	9501	209	8354	8	50
20	2219	48	4014	50	1791	8	6947	207	9292	209	8347	7	40
30	2267	48	4064	50	1798	7	6741	206	9083	209	8339	8	30
40	2315	48	4113	49	1806	8	6534	207	8873	210	8332	7	20
50	2363	48	4163	50	1813	7	6327	207	8665	208	8325	7	10
46 0	0.152411	48	0.154213	50	1.011821	8	6.56121	206	6.48456	209	0.988317	8	**14** 0
10	2459	48	4262	49	1828	7	5915	206	8247	209	8310	7	50
20	2507	48	4312	50	1836	8	5709	206	8039	208	8302	8	40
30	2555	48	4361	49	1844	8	5503	206	7830	209	8295	7	30
40	2603	48	4411	50	1851	7	5297	206	7622	208	8288	7	20
50	2650	47	4461	50	1859	8	5091	206	7414	208	8280	8	10
47 0	0.152698	48	0.154510	49	1.011866	7	6.54886	205	6.47206	208	0.988273	7	**13** 0
10	2746	48	4560	50	1874	8	4680	206	6998	208	8265	8	50
20	2794	48	4610	50	1881	7	4475	205	6790	208	8258	7	40
30	2842	48	4659	49	1889	8	4270	205	6583	207	8251	7	30
40	2890	48	4709	50	1897	8	4065	205	6375	208	8243	8	20
50	2938	48	4759	50	1904	7	3860	205	6168	207	8236	7	10
48 0	0.152986	48	0.154808	49	1.011912	8	6.53655	205	6.45961	207	0.988228	8	**12** 0
10	3034	48	4858	50	1919	7	3451	204	5754	207	8221	7	50
20	3082	48	4907	49	1927	8	3246	205	5547	207	8214	7	40
30	3130	48	4957	50	1935	8	3042	204	5340	207	8206	8	30
40	3177	47	5007	50	1942	7	2837	205	5133	207	8199	7	20
50	3225	48	5056	49	1950	8	2633	204	4927	206	8191	8	10
49 0	0.153273	48	0.155106	50	1.011957	7	6.52429	204	6.44720	207	0.988184	7	**11** 0
10	3321	48	5156	50	1965	8	2226	203	4514	206	8176	8	50
20	3369	48	5205	49	1973	8	2022	204	4308	206	8169	7	40
30	3417	48	5255	50	1980	7	1818	204	4102	206	8162	7	30
40	3465	48	5305	50	1988	8	1615	203	3896	206	8154	8	20
50	3513	48	5354	49	1996	8	1411	204	3690	206	8147	7	10
50 0	0.153561	48	0.155404	50	1.012003	7	6.51208	203	6.43484	206	0.988139	8	**10** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

196

1	19.6
2	39.2
3	58.8
4	78.4
5	98.0
6	117.6
7	137.2
8	156.8
9	176.4

198

1	19.8
2	39.6
3	59.4
4	79.2
5	99.0
6	118.8
7	138.6
8	158.4
9	178.2

200

1	20.0
2	40.0
3	60.0
4	80.0
5	100.0
6	120.0
7	140.0
8	160.0
9	180.0

204

1	20.4
2	40.8
3	61.2
4	81.6
5	102.0
6	122.4
7	142.8
8	163.2
9	183.6

208

1	20.8
2	41.6
3	62.4
4	83.2
5	104.0
6	124.8
7	145.6
8	166.4
9	187.2

212

1	21.2
2	42.4
3	63.6
4	84.8
5	106.0
6	127.2
7	148.4
8	169.6
9	190.8

8°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.153561		0.155404		1.012003		6.51208		6.43484		0.988139		**10′** 0″
10	3609	48	5454	50	2011	8	1005	203	3279	205	8132	7	50
20	3657	48	5503	49	2018	7	0802	203	3073	206	8124	8	40
30	3704	47	5553	50	2026	8	0599	203	2868	205	8117	7	30
40	3752	48	5603	50	2034	8	0397	202	2663	205	8109	8	20
50	3800	48	5652	49	2041	7	6.50194	203	2458	205	8102	7	10
51 0	0.153848	48	0.155702	50	1.012049	8	6.49991	203	6.42253	205	0.988094	8	**9** 0
10	3896	48	5752	50	2057	8	9789	202	2048	205	8087	7	50
20	3944	48	5801	49	2064	7	9587	202	1844	204	8080	7	40
30	3992	48	5851	50	2072	8	9385	202	1639	205	8072	8	30
40	4040	48	5901	50	2080	8	9183	202	1435	204	8065	7	20
50	4088	48	5950	49	2087	7	8981	202	1230	205	8057	8	10
52 0	0.154136	48	0.156000	50	1.012095	8	6.48779	202	6.41026	204	0.988050	7	**8** 0
10	4183	47	6049	49	2102	7	8578	201	0822	204	8042	8	50
20	4231	48	6099	50	2110	8	8376	202	0618	204	8035	7	40
30	4279	48	6149	50	2118	8	8175	201	0415	203	8027	8	30
40	4327	48	6198	49	2125	7	7974	201	0211	204	8020	7	20
50	4375	48	6248	50	2133	8	7773	201	6.40008	203	8012	8	10
53 0	0.154423	48	0.156298	50	1.012141	8	6.47572	201	6.39804	204	0.988005	7	**7** 0
10	4471	48	6347	49	2148	7	7371	201	9601	203	7997	8	50
20	4519	48	6397	50	2156	8	7170	201	9398	203	7990	7	40
30	4567	48	6447	50	2164	8	6970	200	9195	203	7982	8	30
40	4615	48	6496	49	2172	8	6769	201	8992	203	7975	7	20
50	4662	47	6546	50	2179	7	6569	200	8789	203	7967	8	10
54 0	0.154710	48	0.156596	50	1.012187	8	6.46369	200	6.38587	202	0.987960	7	**6** 0
10	4758	48	6645	49	2195	8	6169	200	8384	203	7952	8	50
20	4806	48	6695	50	2202	7	5969	200	8182	202	7945	7	40
30	4854	48	6745	50	2210	8	5769	200	7980	202	7937	8	30
40	4902	48	6795	50	2218	8	5570	199	7777	203	7930	7	20
50	4950	48	6844	49	2225	7	5370	200	7575	202	7922	8	10
55 0	0.154998	48	0.156894	50	1.012233	8	6.45171	199	6.37374	201	0.987915	7	**5** 0
10	5046	48	6944	50	2241	8	4971	200	7172	202	7907	8	50
20	5094	48	6993	49	2248	7	4772	199	6970	202	7900	7	40
30	5141	47	7043	50	2256	8	4573	199	6769	201	7892	8	30
40	5189	48	7093	50	2264	8	4374	199	6567	202	7885	7	20
50	5237	48	7142	49	2272	8	4175	199	6366	201	7877	8	10
56 0	0.155285	48	0.157192	50	1.012279	7	6.43977	198	6.36165	201	0.987870	7	**4** 0
10	5333	48	7242	50	2287	8	3778	199	5964	201	7862	8	50
20	5381	48	7291	49	2295	8	3580	198	5763	201	7855	7	40
30	5429	48	7341	50	2302	7	3381	199	5562	201	7847	8	30
40	5477	48	7391	50	2310	8	3183	198	5362	200	7840	7	20
50	5525	48	7440	49	2318	8	2985	198	5161	201	7832	8	10
57 0	0.155572	47	0.157490	50	1.012326	8	6.42787	198	6.34961	200	0.987824	8	**3** 0
10	5620	48	7540	50	2333	7	2589	198	4761	200	7817	7	50
20	5668	48	7589	49	2341	8	2392	197	4561	200	7809	8	40
30	5716	48	7639	50	2349	8	2194	198	4361	200	7802	7	30
40	5764	48	7689	50	2357	8	1997	197	4161	200	7794	8	20
50	5812	48	7738	49	2364	7	1799	198	3961	200	7787	7	10
58 0	0.155860	48	0.157788	50	1.012372	8	6.41602	197	6.33761	200	0.987779	8	**2** 0
10	5908	48	7838	50	2380	8	1405	197	3562	199	7772	7	50
20	5956	48	7888	50	2388	8	1208	197	3362	200	7764	8	40
30	6003	47	7937	49	2395	7	1011	197	3163	199	7757	7	30
40	6051	48	7987	50	2403	8	0815	196	2964	199	7749	8	20
50	6099	48	8037	50	2411	8	0618	197	2765	199	7741	8	10
59 0	0.156147	48	0.158086	49	1.012419	8	6.40422	196	6.32566	199	0.987734	7	**1** 0
10	6195	48	8136	50	2426	7	0225	197	2367	199	7726	8	50
20	6243	48	8186	50	2434	8	6.40029	196	2169	198	7719	7	40
30	6291	48	8235	49	2442	8	6.39833	196	1970	199	7711	8	30
40	6339	48	8285	50	2450	8	9637	196	1772	198	7704	7	20
50	6387	48	8335	50	2457	7	9441	196	1573	199	7696	8	10
60 0	0.156434	47	0.158384	49	1.012465	8	6.39245	196	6.31375	198	0.987688	8	**0** 0
	cos		cotg		cosec		sec		tang		sin		

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

197

1	19.7
2	39.4
3	59.1
4	78.8
5	98.5
6	118.2
7	137.9
8	157.6
9	177.3

199

1	19.9
2	39.8
3	59.7
4	79.6
5	99.5
6	119.4
7	139.3
8	159.2
9	179.1

202

1	20.2
2	40.4
3	60.6
4	80.8
5	101.0
6	121.2
7	141.4
8	161.6
9	181.8

206

1	20.6
2	41.2
3	61.8
4	82.4
5	103.0
6	123.6
7	144.2
8	164.8
9	185.4

210

1	21.0
2	42.0
3	63.0
4	84.0
5	105.0
6	126.0
7	147.0
8	168.0
9	189.0

214

1	21.4
2	42.8
3	64.2
4	85.6
5	107.0
6	128.4
7	149.8
8	171.2
9	192.6

81°

9°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.156434		0.158384		1.012465		6.39245		6.31375		0.987688		**60′** 0″
10	6482	48	8434	50	2473	8	9050	195	1177	198	7681	7	50
20	6530	48	8484	50	2481	8	8854	196	0979	198	7673	8	40
30	6578	48	8534	50	2488	7	8659	195	0781	198	7666	7	30
40	6626	48	8583	49	2496	8	8464	195	0584	197	7658	8	20
50	6674	48	8633	50	2504	8	8268	196	0386	198	7650	8	10
1 0	0.156722	48	0.158683	50	1.012512	8	6.38073	195	6.30189	197	0.987643	7	**59** 0
10	6770	48	8732	49	2520	8	7879	194	6.29991	198	7635	8	50
20	6818	48	8782	50	2527	7	7684	195	9794	197	7628	7	40
30	6865	47	8832	50	2535	8	7489	195	9597	197	7620	8	30
40	6913	48	8881	49	2543	8	7295	194	9400	197	7612	8	20
50	6961	48	8931	50	2551	8	7100	195	9203	197	7605	7	10
2 0	0.157009	48	0.158981	50	1.012559	8	6.36906	194	6.29007	196	0.987597	8	**58** 0
10	7057	48	9031	50	2566	7	6712	194	8810	197	7590	7	50
20	7105	48	9080	49	2574	8	6518	194	8613	197	7582	8	40
30	7153	48	9130	50	2582	8	6324	194	8417	196	7574	8	30
40	7201	48	9180	50	2590	8	6130	194	8221	196	7567	7	20
50	7248	47	9229	49	2598	8	5936	194	8025	196	7559	8	10
3 0	0.157296	48	0.159279	50	1.012605	7	6.35743	193	6.27829	196	0.987551	8	**57** 0
10	7344	48	9329	50	2613	8	5549	194	7633	196	7544	7	50
20	7392	48	9379	50	2621	8	5356	193	7437	196	7536	8	40
30	7440	48	9428	49	2629	8	5163	193	7241	196	7529	7	30
40	7488	48	9478	50	2637	8	4970	193	7046	195	7521	8	20
50	7536	48	9528	50	2645	8	4777	193	6850	196	7513	8	10
4 0	0.157584	48	0.159577	49	1.012652	7	6.34584	193	6.26655	195	0.987506	7	**56** 0
10	7631	47	9627	50	2660	8	4391	193	6460	195	7498	8	50
20	7679	48	9677	50	2668	8	4199	192	6265	195	7490	8	40
30	7727	48	9727	50	2676	8	4006	193	6070	195	7483	7	30
40	7775	48	9776	49	2684	8	3814	192	5875	195	7475	8	20
50	7823	48	9826	50	2692	8	3621	193	5680	195	7467	8	10
5 0	0.157871	48	0.159876	50	1.012699	7	6.33429	192	6.25486	194	0.987460	7	**55** 0
10	7919	48	9925	49	2707	8	3237	192	5291	195	7452	8	50
20	7967	48	0.159975	50	2715	8	3045	192	5097	194	7444	8	40
30	8014	47	0.160025	50	2723	8	2854	191	4903	194	7437	7	30
40	8062	48	0075	50	2731	8	2662	192	4709	194	7429	8	20
50	8110	48	0124	49	2739	8	2470	192	4515	194	7421	8	10
6 0	0.158158	48	0.160174	50	1.012747	8	6.32279	191	6.24321	194	0.987414	7	**54** 0
10	8206	48	0224	50	2754	7	2088	191	4127	194	7406	8	50
20	8254	48	0274	50	2762	8	1896	192	3933	194	7398	8	40
30	8302	48	0323	49	2770	8	1705	191	3740	193	7391	7	30
40	8350	48	0373	50	2778	8	1514	191	3547	193	7383	8	20
50	8397	47	0423	50	2786	8	1323	191	3353	194	7375	8	10
7 0	0.158445	48	0.160472	49	1.012794	8	6.31133	190	6.23160	193	0.987368	7	**53** 0
10	8493	48	0522	50	2802	8	0942	191	2967	193	7360	8	50
20	8541	48	0572	50	2810	8	0752	190	2774	193	7352	8	40
30	8589	48	0622	50	2818	8	0561	191	2581	193	7345	7	30
40	8637	48	0671	49	2825	7	0371	190	2389	192	7337	8	20
50	8685	48	0721	50	2833	8	6.30181	190	2196	193	7329	8	10
8 0	0.158732	47	0.160771	50	1.012841	8	6.29991	190	6.22003	193	0.987322	7	**52** 0
10	8780	48	0821	50	2849	8	9801	190	1811	192	7314	8	50
20	8828	48	0870	49	2857	8	9611	190	1619	192	7306	8	40
30	8876	48	0920	50	2865	8	9421	190	1427	192	7299	7	30
40	8924	48	0970	50	2873	8	9232	189	1235	192	7291	8	20
50	8972	48	1019	49	2881	8	9042	190	1043	192	7283	8	10
9 0	0.159020	48	0.161069	50	1.012889	8	6.28853	189	6.20851	192	0.987275	8	**51** 0
10	9068	48	1119	50	2897	8	8664	189	0659	192	7268	7	50
20	9115	47	1169	50	2904	7	8475	189	0468	191	7260	8	40
30	9163	48	1218	49	2912	8	8286	189	0276	192	7252	8	30
40	9211	48	1268	50	2920	8	8097	189	6.20085	191	7245	7	20
50	9259	48	1318	50	2928	8	7908	189	6.19894	191	7237	8	10
10 0	0.159307	48	0.161368	50	1.012936	8	6.27719	189	6.19703	191	0.987229	8	**50** 0
	cos		cotg		cosec		sec		tang		sin		

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

182	
1	18.2
2	36.4
3	54.6
4	72.8
5	91.0
6	109.2
7	127.4
8	145.6
9	163.8

184	
1	18.4
2	36.8
3	55.2
4	73.6
5	92.0
6	110.4
7	128.8
8	147.2
9	165.6

186	
1	18.6
2	37.2
3	55.8
4	74.4
5	93.0
6	111.6
7	130.2
8	148.8
9	167.4

188	
1	18.8
2	37.6
3	56.4
4	75.2
5	94.0
6	112.8
7	131.6
8	150.4
9	169.2

192	
1	19.2
2	38.4
3	57.6
4	76.8
5	96.0
6	115.2
7	134.4
8	153.6
9	172.8

196	
1	19.6
2	39.2
3	58.8
4	78.4
5	98.0
6	117.6
7	137.2
8	156.8
9	176.4

80°

9°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.159307		0.161368		1.012936		6.27719		6.19703		0.987229		**50′** 0″
10	9355	48	1417	49	2944	8	7531	188	9512	191	7221	8	50
20	9403	48	1467	50	2952	8	7342	189	9321	191	7214	7	40
30	9450	47	1517	50	2960	8	7154	188	9130	191	7206	8	30
40	9498	48	1567	50	2968	8	6966	188	8940	190	7198	8	20
50	9546	48	1616	49	2976	8	6778	188	8749	191	7190	8	10
11 0	0.159594	48	0.161666	50	1.012984	8	6.26590	188	6.18559	190	0.987183	7	**49** 0
10	9642	48	1716	50	2992	8	6402	188	8368	191	7175	8	50
20	9690	48	1766	50	3000	8	6214	188	8178	190	7167	8	40
30	9738	48	1815	49	3008	8	6027	187	7988	190	7160	7	30
40	9785	47	1865	50	3015	7	5839	188	7798	190	7152	8	20
50	9833	48	1915	50	3023	8	5652	187	7608	190	7144	8	10
12 0	0.159881	48	0.161965	50	1.013031	8	6.25464	188	6.17419	189	0.987136	8	**48** 0
10	9929	48	2014	49	3039	8	5277	187	7229	190	7129	7	50
20	0.159977	48	2064	50	3047	8	5090	187	7040	189	7121	8	40
30	0.160025	48	2114	50	3055	8	4903	187	6850	190	7113	8	30
40	0073	48	2164	50	3063	8	4716	187	6661	189	7105	8	20
50	0120	47	2213	49	3071	8	4530	186	6472	189	7097	8	10
13 0	0.160168	48	0.162263	50	1.013079	8	6.24343	187	6.16283	189	0.987090	7	**47** 0
10	0216	48	2313	50	3087	8	4157	186	6094	189	7082	8	50
20	0264	48	2363	50	3095	8	3970	187	5905	189	7074	8	40
30	0312	48	2412	49	3103	8	3784	186	5716	189	7066	8	30
40	0360	48	2462	50	3111	8	3598	186	5528	188	7059	7	20
50	0408	48	2512	50	3119	8	3412	186	5339	189	7051	8	10
14 0	0.160455	47	0.162562	50	1.013127	8	6.23226	186	6.15151	188	0.987043	8	**46** 0
10	0503	48	2612	50	3135	8	3040	186	4963	188	7035	8	50
20	0551	48	2661	49	3143	8	2854	186	4774	189	7028	7	40
30	0599	48	2711	50	3151	8	2669	185	4586	188	7020	8	30
40	0647	48	2761	50	3159	8	2483	186	4399	187	7012	8	20
50	0695	48	2811	50	3167	8	2298	185	4211	188	7004	8	10
15 0	0.160743	48	0.162860	49	1.013175	8	6.22113	185	6.14023	188	0.986996	8	**45** 0
10	0790	47	2910	50	3183	8	1928	185	3835	188	6989	7	50
20	0838	48	2960	50	3191	8	1743	185	3648	187	6981	8	40
30	0886	48	3010	50	3199	8	1558	185	3461	187	6973	8	30
40	0934	48	3059	49	3207	8	1373	185	3273	188	6965	8	20
50	0982	48	3109	50	3215	8	1188	185	3086	187	6957	8	10
16 0	0.161030	48	0.163159	50	1.013223	8	6.21004	184	6.12899	187	0.986950	7	**44** 0
10	1078	48	3209	50	3231	8	0819	185	2712	187	6942	8	50
20	1125	47	3259	50	3239	8	0635	184	2526	186	6934	8	40
30	1173	48	3308	49	3247	8	0451	184	2339	187	6926	8	30
40	1221	48	3358	50	3255	8	0266	185	2152	187	6918	8	20
50	1269	48	3408	50	3263	8	6.20082	184	1966	186	6911	7	10
17 0	0.161317	48	0.163458	50	1.013271	8	6.19898	184	6.11779	187	0.986903	8	**43** 0
10	1365	48	3507	49	3279	8	9715	183	1593	186	6895	8	50
20	1412	47	3557	50	3287	8	9531	184	1407	186	6887	8	40
30	1460	48	3607	50	3295	8	9347	184	1221	186	6879	8	30
40	1508	48	3657	50	3303	8	9164	183	1035	186	6871	8	20
50	1556	48	3706	49	3311	8	8981	183	0849	186	6864	7	10
18 0	0.161604	48	0.163756	50	1.013319	8	6.18797	184	6.10664	185	0.986856	8	**42** 0
10	1652	48	3806	50	3327	8	8614	183	0478	186	6848	8	50
20	1700	48	3856	50	3335	8	8431	183	0293	185	6840	8	40
30	1747	47	3906	50	3344	9	8248	183	6.10107	186	6832	8	30
40	1795	48	3955	49	3352	8	8065	183	6.09922	185	6824	8	20
50	1843	48	4005	50	3360	8	7883	182	9737	185	6817	7	10
19 0	0.161891	48	0.164055	50	1.013368	8	6.17700	183	6.09552	185	0.986809	8	**41** 0
10	1939	48	4105	50	3376	8	7518	182	9367	185	6801	8	50
20	1987	48	4155	50	3384	8	7335	183	9182	185	6793	8	40
30	2034	47	4204	49	3392	8	7153	182	8997	185	6785	8	30
40	2082	48	4254	50	3400	8	6971	182	8813	184	6777	8	20
50	2130	48	4304	50	3408	8	6789	182	8628	185	6769	8	10
20 0	0.162178	48	0.164354	50	1.013416	8	6.16607	182	6.08444	184	0.986762	7	**40** 0
	cos		cotg		cosec		sec		tang		sin		

48		50		183		185		187		190		194		198	
1	4.8	1	5.0	1	18.3	1	18.5	1	18.7	1	19.0	1	19.4	1	19.8
2	9.6	2	10.0	2	36.6	2	37.0	2	37.4	2	38.0	2	38.8	2	39.6
3	14.4	3	15.0	3	54.9	3	55.5	3	56.1	3	57.0	3	58.2	3	59.4
4	19.2	4	20.0	4	73.2	4	74.0	4	74.8	4	76.0	4	77.6	4	79.2
5	24.0	5	25.0	5	91.5	5	92.5	5	93.5	5	95.0	5	97.0	5	99.0
6	28.8	6	30.0	6	109.8	6	111.0	6	112.2	6	114.0	6	116.4	6	118.8
7	33.6	7	35.0	7	128.1	7	129.5	7	130.9	7	133.0	7	135.8	7	138.6
8	38.4	8	40.0	8	146.4	8	148.0	8	149.6	8	152.0	8	155.2	8	158.4
9	43.2	9	45.0	9	164.7	9	166.5	9	168.3	9	171.0	9	174.6	9	178.2

80°

9°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.162178		0.164354		1.013416		6.16607		6.08444		0.986762		**40′** 0″
10	2226	48	4404	50	3424	8	6425	182	8260	184	6754	8	50
20	2274	48	4453	49	3432	8	6243	182	8075	185	6746	8	40
30	2321	47	4503	50	3440	8	6062	181	7891	184	6738	8	30
40	2369	48	4553	50	3448	8	5880	182	7707	184	6730	8	20
50	2417	48	4603	50	3456	8	5699	181	7524	183	6722	8	10
21 0	0.162465	48	0.164652	49	1.013465	9	6.15517	182	6.07340	184	0.986714	8	**39** 0
10	2513	48	4702	50	3473	8	5336	181	7156	184	6706	8	50
20	2561	48	4752	50	3481	8	5155	181	6973	183	6699	7	40
30	2608	47	4802	50	3489	8	4974	181	6789	184	6691	8	30
40	2656	48	4852	50	3497	8	4793	181	6606	183	6683	8	20
50	2704	48	4901	49	3505	8	4613	180	6423	183	6675	8	10
22 0	0.162752	48	0.164951	50	1.013513	8	6.14432	181	6.06240	183	0.986667	8	**38** 0
10	2800	48	5001	50	3521	8	4251	181	6057	183	6659	8	50
20	2848	48	5051	50	3529	8	4071	180	5874	183	6651	8	40
30	2895	47	5101	50	3537	8	3891	180	5691	183	6643	8	30
40	2943	48	5150	49	3546	9	3710	181	5508	183	6635	8	20
50	2991	48	5200	50	3554	8	3530	180	5326	182	6628	7	10
23 0	0.163039	48	0.165250	50	1.013562	8	6.13350	180	6.05143	183	0.986620	8	**37** 0
10	3087	48	5300	50	3570	8	3170	180	4961	182	6612	8	50
20	3135	48	5350	50	3578	8	2991	179	4779	182	6604	8	40
30	3182	47	5399	49	3586	8	2811	180	4597	182	6596	8	30
40	3230	48	5449	50	3594	8	2631	180	4415	182	6588	8	20
50	3278	48	5499	50	3602	8	2452	179	4233	182	6580	8	10
24 0	0.163326	48	0.165549	50	1.013611	9	6.12273	179	6.04051	182	0.986572	8	**36** 0
10	3374	48	5599	50	3619	8	2093	180	3869	182	6564	8	50
20	3422	48	5649	50	3627	8	1914	179	3688	181	6556	8	40
30	3469	47	5698	49	3635	8	1735	179	3506	182	6548	8	30
40	3517	48	5748	50	3643	8	1556	179	3325	181	6540	8	20
50	3565	48	5798	50	3651	8	1377	179	3144	181	6533	7	10
25 0	0.163613	48	0.165848	50	1.013659	8	6.11199	178	6.02962	182	0.986525	8	**35** 0
10	3661	48	5898	50	3668	9	1020	179	2781	181	6517	8	50
20	3709	48	5947	49	3676	8	0841	179	2600	181	6509	8	40
30	3756	47	5997	50	3684	8	0663	178	2420	180	6501	8	30
40	3804	48	6047	50	3692	8	0485	178	2239	181	6493	8	20
50	3852	48	6097	50	3700	8	0307	178	2058	181	6485	8	10
26 0	0.163900	48	0.166147	50	1.013708	8	6.10129	178	6.01878	180	0.986477	8	**34** 0
10	3948	48	6197	50	3717	9	6.09951	178	1697	181	6469	8	50
20	3996	48	6246	49	3725	8	9773	178	1517	180	6461	8	40
30	4043	47	6296	50	3733	8	9595	178	1337	180	6453	8	30
40	4091	48	6346	50	3741	8	9417	178	1157	180	6445	8	20
50	4139	48	6396	50	3749	8	9240	177	0977	180	6437	8	10
27 0	0.164187	48	0.166446	50	1.013757	8	6.09062	178	6.00797	180	0.986429	8	**33** 0
10	4235	48	6495	49	3766	9	8885	177	0617	180	6421	8	50
20	4282	47	6545	50	3774	8	8708	177	0437	180	6413	8	40
30	4330	48	6595	50	3782	8	8530	178	0258	179	6405	8	30
40	4378	48	6645	50	3790	8	8353	177	6.00078	180	6397	8	20
50	4426	48	6695	50	3798	8	8176	177	5.99899	179	6389	8	10
28 0	0.164474	48	0.166745	50	1.013807	9	6.08000	176	5.99720	179	0.986381	8	**32** 0
10	4522	48	6794	49	3815	8	7823	177	9540	180	6373	8	50
20	4569	47	6844	50	3823	8	7646	177	9361	179	6366	7	40
30	4617	48	6894	50	3831	8	7470	176	9182	179	6358	8	30
40	4665	48	6944	50	3839	8	7293	177	9004	178	6350	8	20
50	4713	48	6994	50	3848	9	7117	176	8825	179	6342	8	10
29 0	0.164761	48	0.167044	50	1.013856	8	6.06941	176	5.98646	179	0.986334	8	**31** 0
10	4809	48	7093	49	3864	8	6765	176	8468	178	6326	8	50
20	4856	47	7143	50	3872	8	6589	176	8289	179	6318	8	40
30	4904	48	7193	50	3880	8	6413	176	8111	178	6310	8	30
40	4952	48	7243	50	3889	9	6237	176	7933	178	6302	8	20
50	5000	48	7293	50	3897	8	6061	176	7754	179	6294	8	10
30 0	0.165048	48	0.167343	50	1.013905	8	6.05886	175	5.97576	178	0.986286	8	**30** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

169

1	16.9
2	33.8
3	50.7
4	67.6
5	84.5
6	101.4
7	118.3
8	135.2
9	152.1

171

1	17.1
2	34.2
3	51.3
4	68.4
5	85.5
6	102.6
7	119.7
8	136.8
9	153.9

173

1	17.3
2	34.6
3	51.9
4	69.2
5	86.5
6	103.8
7	121.1
8	138.4
9	155.7

175

1	17.5
2	35.0
3	52.5
4	70.0
5	87.5
6	105.0
7	122.5
8	140.0
9	157.5

179

1	17.9
2	35.8
3	53.7
4	71.6
5	89.5
6	107.4
7	125.3
8	143.2
9	161.1

183

1	18.3
2	36.6
3	54.9
4	73.2
5	91.5
6	109.8
7	128.1
8	146.4
9	164.7

9°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.165048		0.167343		1.013905		6.05886		5.97576		0.986286		**30′** 0″
10	5095	47	7392	49	3913	8	5710	176	7399	177	6278	8	50
20	5143	48	7442	50	3922	9	5535	175	7221	178	6270	8	40
30	5191	48	7492	50	3930	8	5360	175	7043	178	6262	8	30
40	5239	48	7542	50	3938	8	5184	176	6865	178	6254	8	20
50	5287	48	7592	50	3946	8	5009	175	6688	177	6246	8	10
31 0	0.165334	47	0.167642	50	1.013954	8	6.04834	175	5.96510	178	0.986238	8	**29** 0
10	5382	48	7692	50	3963	9	4660	174	6333	177	6230	8	50
20	5430	48	7741	49	3971	8	4485	175	6156	177	6222	8	40
30	5478	48	7791	50	3979	8	4310	175	5979	177	6213	9	30
40	5526	48	7841	50	3987	8	4136	174	5802	177	6205	8	20
50	5574	48	7891	50	3996	9	3961	175	5625	177	6197	8	10
32 0	0.165621	47	0.167941	50	1.014004	8	6.03787	174	5.95448	177	0.986189	8	**28** 0
10	5669	48	7991	50	4012	8	3613	174	5271	177	6181	8	50
20	5717	48	8040	49	4021	9	3438	175	5095	176	6173	8	40
30	5765	48	8090	50	4029	8	3264	174	4918	177	6165	8	30
40	5813	48	8140	50	4037	8	3090	174	4742	176	6157	8	20
50	5860	47	8190	50	4045	8	2917	173	4566	176	6149	8	10
33 0	0.165908	48	0.168240	50	1.014054	9	6.02743	174	5.94390	176	0.986141	8	**27** 0
10	5956	48	8290	50	4062	8	2569	174	4213	177	6133	8	50
20	6004	48	8340	50	4070	8	2396	173	4037	176	6125	8	40
30	6052	48	8389	49	4078	8	2222	174	3862	175	6117	8	30
40	6099	47	8439	50	4087	9	2049	173	3686	176	6109	8	20
50	6147	48	8489	50	4095	8	1876	173	3510	176	6101	8	10
34 0	0.166195	48	0.168539	50	1.014103	8	6.01702	174	5.93335	175	0.986093	8	**26** 0
10	6243	48	8589	50	4112	9	1529	173	3159	176	6085	8	50
20	6291	48	8639	50	4120	8	1357	172	2984	175	6077	8	40
30	6339	48	8689	50	4128	8	1184	173	2808	176	6069	8	30
40	6386	47	8738	49	4136	8	1011	173	2633	175	6061	8	20
50	6434	48	8788	50	4145	9	0838	173	2458	175	6053	8	10
35 0	0.166482	48	0.168838	50	1.014153	8	6.00666	172	5.92283	175	0.986045	8	**25** 0
10	6530	48	8888	50	4161	8	0493	173	2108	175	6036	9	50
20	6578	48	8938	50	4170	9	0321	172	1934	174	6028	8	40
30	6625	47	8988	50	4178	8	6.00149	172	1759	175	6020	8	30
40	6673	48	9038	50	4186	8	5.99977	172	1584	175	6012	8	20
50	6721	48	9087	49	4195	9	9805	172	1410	174	6004	8	10
36 0	0.166769	48	0.169137	50	1.014203	8	5.99633	172	5.91236	174	0.985996	8	**24** 0
10	6817	48	9187	50	4211	8	9461	172	1061	175	5988	8	50
20	6864	47	9237	50	4219	8	9289	172	0887	174	5980	8	40
30	6912	48	9287	50	4228	9	9118	171	0713	174	5972	8	30
40	6960	48	9337	50	4236	8	8946	172	0539	174	5964	8	20
50	7008	48	9387	50	4244	8	8775	171	0365	174	5956	8	10
37 0	0.167056	48	0.169437	50	1.014253	9	5.98603	172	5.90191	174	0.985947	9	**23** 0
10	7103	47	9486	49	4261	8	8432	171	5.90018	173	5939	8	50
20	7151	48	9536	50	4269	8	8261	171	5.89844	174	5931	8	40
30	7199	48	9586	50	4278	9	8090	171	9671	173	5923	8	30
40	7247	48	9636	50	4286	8	7919	171	9497	174	5915	8	20
50	7295	48	9686	50	4294	8	7748	171	9324	173	5907	8	10
38 0	0.167342	47	0.169736	50	1.014303	9	5.97577	171	5.89151	173	0.985899	8	**22** 0
10	7390	48	9786	50	4311	8	7407	170	8978	173	5891	8	50
20	7438	48	9836	50	4320	9	7236	171	8805	173	5883	8	40
30	7486	48	9885	49	4328	8	7066	170	8632	173	5874	9	30
40	7534	48	9935	50	4336	8	6895	171	8459	173	5866	8	20
50	7581	47	0.169985	50	4345	9	6725	170	8286	173	5858	8	10
39 0	0.167629	48	0.170035	50	1.014353	8	5.96555	170	5.88114	172	0.985850	8	**21** 0
10	7677	48	0085	50	4361	8	6385	170	7941	173	5842	8	50
20	7725	48	0135	50	4370	9	6215	170	7769	172	5834	8	40
30	7773	48	0185	50	4378	8	6045	170	7597	172	5826	8	30
40	7820	47	0235	50	4386	8	5875	170	7425	172	5818	8	20
50	7868	48	0285	50	4395	9	5706	169	7252	173	5809	9	10
40 0	0.167916	48	0.170334	49	1.014403	8	5.95536	170	5.87080	172	0.985801	8	**20** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

170	
1	17.0
2	34.0
3	51.0
4	68.0
5	85.0
6	102.0
7	119.0
8	136.0
9	153.0

172	
1	17.2
2	34.4
3	51.6
4	68.8
5	86.0
6	103.2
7	120.4
8	137.6
9	154.8

174	
1	17.4
2	34.8
3	52.2
4	69.6
5	87.0
6	104.4
7	121.8
8	139.2
9	156.6

177	
1	17.7
2	35.4
3	53.1
4	70.8
5	88.5
6	106.2
7	123.9
8	141.6
9	159.3

181	
1	18.1
2	36.2
3	54.3
4	72.4
5	90.5
6	108.6
7	126.7
8	144.8
9	162.9

185	
1	18.5
2	37.0
3	55.5
4	74.0
5	92.5
6	111.0
7	129.5
8	148.0
9	166.5

80°

9°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.167916		0.170334		1.014403		5.95536		5.87080		0.985801		**20′** 0″
10	7964	48	0384	50	4412	9	5367	169	6909	171	5793	8	50
20	8011	47	0434	50	4420	8	5197	170	6737	172	5785	8	40
30	8059	48	0484	50	4428	8	5028	169	6565	172	5777	8	30
40	8107	48	0534	50	4437	9	4859	169	6393	172	5769	8	20
50	8155	48	0584	50	4445	8	4690	169	6222	171	5761	8	10
41 0	0.168203	48	0.170634	50	1.014453	8	5.94521	169	5.86051	171	0.985752	9	**19** 0
10	8250	47	0684	50	4462	9	4352	169	5879	172	5744	8	50
20	8298	48	0734	50	4470	8	4183	169	5708	171	5736	8	40
30	8346	48	0783	49	4479	9	4015	168	5537	171	5728	8	30
40	8394	48	0833	50	4487	8	3846	169	5366	171	5720	8	20
50	8442	48	0883	50	4495	8	3678	168	5195	171	5712	8	10
42 0	0.168489	47	0.170933	50	1.014504	9	5.93509	169	5.85024	171	0.985703	9	**18** 0
10	8537	48	0983	50	4512	8	3341	168	4853	171	5695	8	50
20	8585	48	1033	50	4521	9	3173	168	4683	170	5687	8	40
30	8633	48	1083	50	4529	8	3005	168	4512	171	5679	8	30
40	8681	48	1133	50	4538	9	2837	168	4342	170	5671	8	20
50	8728	47	1183	50	4546	8	2669	168	4171	171	5663	8	10
43 0	0.168776	48	0.171233	50	1.014554	9	5.92501	168	5.84001	170	0.985654	9	**17** 0
10	8824	48	1282	49	4563	8	2333	168	3831	170	5646	8	50
20	8872	48	1332	50	4571	9	2166	167	3661	170	5638	8	40
30	8919	47	1382	50	4580	8	1998	168	3491	170	5630	8	30
40	8967	48	1432	50	4588	9	1831	167	3321	170	5622	8	20
50	9015	48	1482	50	4597	8	1663	168	3151	170	5613	9	10
44 0	0.169063	48	0.171532	50	1.014605	8	5.91496	167	5.82982	169	0.985605	8	**16** 0
10	9111	48	1582	50	4613	9	1329	167	2812	170	5597	8	50
20	9158	47	1632	50	4622	8	1162	167	2643	169	5589	8	40
30	9206	48	1682	50	4630	9	0995	167	2473	170	5581	8	30
40	9254	48	1732	50	4639	8	0828	167	2304	169	5572	9	20
50	9302	48	1782	50	4647		0661	167	2135	169	5564	8	10
45 0	0.169350	48	0.171831	49	1.014656	9	5.90495	166	5.81966	169	0.985556	8	**15** 0
10	9397	47	1881	50	4664	8	0328	167	1797	169	5548	8	50
20	9445	48	1931	50	4673	9	5.90162	166	1628	169	5540	8	40
30	9493	48	1981	50	4681	8	5.89995	167	1459	169	5531	9	30
40	9541	48	2031	50	4689	8	9829	166	1290	169	5523	8	20
50	9588	47	2081	50	4698	9	9663	166	1122	168	5515	8	10
46 0	0.169636	48	0.172131	50	1.014706	8	5.89497	166	5.80953	169	0.985507	8	**14** 0
10	9684	48	2181	50	4715	9	9331	166	0785	168	5499	8	50
20	9732	48	2231	50	4723	8	9165	166	0616	169	5490	9	40
30	9780	48	2281	50	4732	9	8999	166	0448	168	5482	8	30
40	9827	47	2331	50	4740	8	8833	166	0280	168	5474	8	20
50	9875	48	2381	50	4749	9	8668	165	5.80112	168	5466	8	10
47 0	0.169923	48	0.172430	49	1.014757	8	5.88502	166	5.79944	168	0.985457	9	**13** 0
10	0.169971	48	2480	50	4766	9	8337	165	9776	168	5449	8	50
20	0.170018	47	2530	50	4774	8	8172	165	9608	168	5441	8	40
30	0066	48	2580	50	4783	9	8006	166	9441	167	5433	8	30
40	0114	48	2630	50	4791	8	7841	165	9273	168	5424	9	20
50	0162	48	2680	50	4800	9	7676	165	9106	167	5416	8	10
48 0	0.170209	47	0.172730	50	1.014808	8	5.87511	165	5.78938	168	0.985408	8	**12** 0
10	0257	48	2780	50	4817	9	7346	165	8771	167	5400	8	50
20	0305	48	2830	50	4825	8	7182	164	8604	167	5391	9	40
30	0353	48	2880	50	4834	9	7017	165	8437	167	5383	8	30
40	0401	48	2930	50	4842	8	6852	165	8270	167	5375	8	20
50	0448	47	2980	50	4851	9	6688	164	8103	167	5367	8	10
49 0	0.170496	48	0.173030	50	1.014859	8	5.86524	164	5.77936	167	0.985358	9	**11** 0
10	0544	48	3080	50	4868	9	6359	165	7769	167	5350	8	50
20	0592	48	3129	49	4876	8	6195	164	7603	166	5342	8	40
30	0639	47	3179	50	4885	9	6031	164	7436	167	5334	8	30
40	0687	48	3229	50	4893	8	5867	164	7270	166	5325	9	20
50	0735	48	3279	50	4902	9	5703	164	7103	167	5317	8	10
50 0	0.170783	48	0.173329	50	1.014910	8	5.85539	164	5.76937	166	0.985309	8	**10** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

158

1	15.8
2	31.6
3	47.4
4	63.2
5	79.0
6	94.8
7	110.6
8	126.4
9	142.2

160

1	16.0
2	32.0
3	48.0
4	64.0
5	80.0
6	96.0
7	112.0
8	128.0
9	144.0

162

1	16.2
2	32.4
3	48.6
4	64.8
5	81.0
6	97.2
7	113.4
8	129.6
9	145.8

164

1	16.4
2	32.8
3	49.2
4	65.6
5	82.0
6	98.4
7	114.8
8	131.2
9	147.6

166

1	16.6
2	33.2
3	49.8
4	66.4
5	83.0
6	99.6
7	116.2
8	132.8
9	149.4

170

1	17.0
2	34.0
3	51.0
4	68.0
5	85.0
6	102.0
7	119.0
8	136.0
9	153.0

9°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.170783		0.173329		1.014910		5.85539		5.76937		0.985309		**10′** 0″
10	0831	48	3379	50	4919	9	5375	164	6771	166	5300	9	50
20	0878	47	3429	50	4927	8	5212	163	6605	166	5292	8	40
30	0926	48	3479	50	4936	9	5048	164	6439	166	5284	8	30
40	0974	48	3529	50	4944	8	4885	163	6273	166	5276	8	20
50	1022	48	3579	50	4953	9	4721	164	6107	166	5267	9	10
51 0	0.171069	47	0.173629	50	1.014962	9	5.84558	163	5.75941	166	0.985259	8	**9** 0
10	1117	48	3679	50	4970	8	4395	163	5776	165	5251	8	50
20	1165	48	3729	50	4979	9	4232	163	5610	166	5242	9	40
30	1213	48	3779	50	4987	8	4069	163	5445	165	5234	8	30
40	1260	47	3829	50	4996	9	3906	163	5279	166	5226	8	20
50	1308	48	3879	50	5004	8	3743	163	5114	165	5217	9	10
52 0	0.171356	48	0.173929	50	1.015013	9	5.83581	162	5.74949	165	0.985209	8	**8** 0
10	1404	48	3978	49	5021	8	3418	163	4784	165	5201	8	50
20	1451	47	4028	50	5030	9	3255	163	4619	165	5193	8	40
30	1499	48	4078	50	5039	9	3093	162	4454	165	5184	9	30
40	1547	48	4128	50	5047	8	2931	162	4289	165	5176	8	20
50	1595	48	4178	50	5056	9	2768	163	4124	165	5168	8	10
53 0	0.171643	48	0.174228	50	1.015064	8	5.82606	162	5.73960	164	0.985159	9	**7** 0
10	1690	47	4278	50	5073	9	2444	162	3795	165	5151	8	50
20	1738	48	4328	50	5081	8	2282	162	3631	164	5143	8	40
30	1786	48	4378	50	5090	9	2120	162	3467	164	5134	9	30
40	1834	48	4428	50	5099	9	1958	162	3302	165	5126	8	20
50	1881	47	4478	50	5107	8	1797	161	3138	164	5118	8	10
54 0	0.171929	48	0.174528	50	1.015116	9	5.81635	162	5.72974	164	0.985109	9	**6** 0
10	1977	48	4578	50	5124	8	1474	161	2810	164	5101	8	50
20	2025	48	4628	50	5133	9	1312	162	2646	164	5093	8	40
30	2072	47	4678	50	5142	9	1151	161	2483	163	5084	9	30
40	2120	48	4728	50	5150	8	0990	161	2319	164	5076	8	20
50	2168	48	4778	50	5159	9	0828	162	2155	164	5068	8	10
55 0	0.172216	48	0.174828	50	1.015167	8	5.80667	161	5.71992	163	0.985059	9	**5** 0
10	2263	47	4878	50	5176	9	0506	161	1828	164	5051	8	50
20	2311	48	4928	50	5185	9	0345	161	1665	163	5043	8	40
30	2359	48	4978	50	5193	8	0185	160	1502	163	5034	9	30
40	2407	48	5028	50	5202	9	5.80024	161	1339	163	5026	8	20
50	2454	47	5078	50	5210	8	5.79863	161	1176	163	5017	9	10
56 0	0.172502	48	0.175127	49	1.015219	9	5.79703	160	5.71013	163	0.985009	8	**4** 0
10	2550	48	5177	50	5228	9	9542	161	0850	163	5001	8	50
20	2598	48	5227	50	5236	8	9382	160	0687	163	4992	9	40
30	2645	47	5277	50	5245	9	9222	160	0524	163	4984	8	30
40	2693	48	5327	50	5254	9	9062	160	0362	162	4976	8	20
50	2741	48	5377	50	5262	8	8902	160	0199	163	4967	9	10
57 0	0.172789	48	0.175427	50	1.015271	9	5.78742	160	5.70037	162	0.984959	8	**3** 0
10	2836	47	5477	50	5279	8	8582	160	5.69874	163	4951	8	50
20	2884	48	5527	50	5288	9	8422	160	9712	162	4942	9	40
30	2932	48	5577	50	5297	9	8262	160	9550	162	4934	8	30
40	2980	48	5627	50	5305	8	8102	160	9388	162	4925	9	20
50	3027	47	5677	50	5314	9	7943	159	9226	162	4917	8	10
58 0	0.173075	48	0.175727	50	1.015323	9	5.77783	160	5.69064	162	0.984909	8	**2** 0
10	3123	48	5777	50	5331	8	7624	159	8902	162	4900	9	50
20	3171	48	5827	50	5340	9	7465	159	8740	162	4892	8	40
30	3218	47	5877	50	5349	9	7306	159	8579	161	4883	9	30
40	3266	48	5927	50	5357	8	7147	159	8417	162	4875	8	20
50	3314	48	5977	50	5366	9	6988	159	8256	161	4867	8	10
59 0	0.173362	48	0.176027	50	1.015375	9	5.76829	159	5.68094	162	0.984858	9	**1** 0
10	3409	47	6077	50	5383	8	6670	159	7933	161	4850	8	50
20	3457	48	6127	50	5392	9	6511	159	7772	161	4841	9	40
30	3505	48	6177	50	5401	9	6352	159	7611	161	4833	8	30
40	3553	48	6227	50	5409	8	6194	158	7450	161	4825	8	20
50	3600	47	6277	50	5418	9	6035	159	7289	161	4816	9	10
60 0	0.173648	48	0.176327	50	1.015427	9	5.75877	158	5.67128	161	0.984808	8	**0** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

159	
1	15.9
2	31.8
3	47.7
4	63.6
5	79.5
6	95.4
7	111.3
8	127.2
9	143.1

161	
1	16.1
2	32.2
3	48.3
4	64.4
5	80.5
6	96.6
7	112.7
8	128.8
9	144.9

163	
1	16.3
2	32.6
3	48.9
4	65.2
5	81.5
6	97.8
7	114.1
8	130.4
9	146.7

165	
1	16.5
2	33.0
3	49.5
4	66.0
5	82.5
6	99.0
7	115.5
8	132.0
9	148.5

168	
1	16.8
2	33.6
3	50.4
4	67.2
5	84.0
6	100.8
7	117.6
8	134.4
9	151.2

172	
1	17.2
2	34.4
3	51.6
4	68.8
5	86.0
6	103.2
7	120.4
8	137.6
9	154.8

80°

10°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.173648		0.176327		1.015427		5·75877		5.67128		0.984808		**60′** 0″
10	3696	48	6377	50	5435	8	5719	158	6967	161	4799	9	50
20	3744	48	6427	50	5444	9	5561	158	6807	160	4791	8	40
30	3791	47	6477	50	5453	9	5402	159	6646	161	4782	9	30
40	3839	48	6527	50	5461	8	5244	158	6486	160	4774	8	20
50	3887	48	6577	50	5470	9	5086	158	6325	161	4766	8	10
1 0	0.173935	48	0.176627	50	1.015479	9	5·74929	157	5.66165	160	0.984757	9	**59** 0
10	3982	47	6677	50	5487	8	4771	158	6005	160	4749	8	50
20	4030	48	6727	50	5496	9	4613	158	5845	160	4740	9	40
30	4078	48	6777	50	5505	9	4456	157	5685	160	4732	8	30
40	4126	48	6827	50	5514	9	4298	158	5525	160	4723	9	20
50	4173	47	6877	50	5522	8	4141	157	5365	160	4715	8	10
2 0	0.174221	48	0.176927	50	1.015531	9	5·73983	158	5.65205	160	0.984707	8	**58** 0
10	4269	48	6977	50	5540	9	3826	157	5045	160	4698	9	50
20	4317	48	7027	50	5548	8	3669	157	4886	159	4690	8	40
30	4364	47	7077	50	5557	9	3512	157	4726	160	4681	9	30
40	4412	48	7127	50	5566	9	3355	157	4567	159	4673	8	20
50	4460	48	7177	50	5575	9	3198	157	4408	159	4664	9	10
3 0	0.174508	48	0.177227	50	1.015583	8	5·73041	157	5.64248	160	0.984656	8	**57** 0
10	4555	47	7277	50	5592	9	2884	157	4089	159	4647	9	50
20	4603	48	7327	50	5601	9	2728	156	3930	159	4639	8	40
30	4651	48	7377	50	5609	8	2571	157	3771	159	4630	9	30
40	4698	47	7427	50	5618	9	2415	156	3612	159	4622	8	20
50	4746	48	7477	50	5627	9	2259	156	3453	159	4614	8	10
4 0	0.174794	48	0.177527	50	1.015636	9	5·72102	157	5.63295	158	0.984605	9	**56** 0
10	4842	48	7577	50	5644	8	1946	156	3136	159	4597	8	50
20	4889	47	7627	50	5653	9	1790	156	2978	158	4588	9	40
30	4937	48	7677	50	5662	9	1634	156	2819	159	4580	8	30
40	4985	48	7727	50	5671	9	1478	156	2661	158	4571	9	20
50	5033	48	7777	50	5679	8	1322	156	2502	159	4563	8	10
5 0	0.175080	47	0.177827	50	1.015688	9	5·71166	156	5.62344	158	0.984554	9	**55** 0
10	5128	48	7877	50	5697	9	1011	155	2186	158	4546	8	50
20	5176	48	7927	50	5706	9	0855	156	2028	158	4537	9	40
30	5224	48	7977	50	5714	8	0700	155	1870	158	4529	8	30
40	5271	47	8027	50	5723	9	0544	156	1712	158	4520	9	20
50	5319	48	8077	50	5732	9	0389	155	1554	158	4512	8	10
6 0	0.175367	48	0.178127	50	1.015741	9	5·70234	155	5.61397	157	0.984503	9	**54** 0
10	5414	47	8177	50	5750	9	5·70078	156	1239	158	4495	8	50
20	5462	48	8227	50	5758	8	5·69923	155	1082	157	4486	9	40
30	5510	48	8277	50	5767	9	9768	155	0924	158	4478	8	30
40	5558	48	8327	50	5776	9	9613	155	0767	157	4469	9	20
50	5605	47	8377	50	5785	9	9459	154	0610	157	4461	8	10
7 0	0.175653	48	0.178427	50	1.015793	8	5.69304	155	5.60452	158	0.984452	9	**53** 0
10	5701	48	8477	50	5802	9	9149	155	0295	157	4444	8	50
20	5749	48	8527	50	5811	9	8995	154	5.60138	157	4435	9	40
30	5796	47	8577	50	5820	9	8840	155	5.59981	157	4427	8	30
40	5844	48	8627	50	5829	9	8686	154	9825	156	4418	9	20
50	5892	48	8677	50	5837	8	8532	154	9668	157	4410	8	10
8 0	0.175939	47	0.178727	50	1.015846	9	5.68377	155	5.59511	157	0.984401	9	**52** 0
10	5987	48	8777	50	5855	9	8223	154	9355	156	4392	9	50
20	6035	48	8827	50	5864	9	8069	154	9198	157	4384	8	40
30	6083	48	8878	51	5873	9	7915	154	9042	156	4375	9	30
40	6130	47	8928	50	5881	8	7761	154	8885	157	4367	8	20
50	6178	48	8978	50	5890	9	7608	153	8729	156	4358	9	10
9 0	0.176226	48	0.179028	50	1.015899	9	5.67454	154	5.58573	156	0.984350	8	**51** 0
10	6274	48	9078	50	5908	9	7300	154	8417	156	4341	9	50
20	6321	47	9128	50	5917	9	7147	153	8261	156	4333	8	40
30	6369	48	9178	50	5926	9	6993	154	8105	156	4324	9	30
40	6417	48	9228	50	5934	8	6840	153	7949	156	4316	8	20
50	6464	47	9278	50	5943	9	6687	153	7794	155	4307	9	10
10 0	0.176512	48	0.179328	50	1.015952	9	5.66533	154	5.57638	156	0.984298	9	**50** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4·7
2	9·4
3	14·1
4	18.8
5	23·5
6	28.2
7	32·9
8	37.6
9	42·3

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

148

1	14.8
2	29.6
3	44·4
4	59.2
5	74.0
6	88.8
7	103.6
8	118.4
9	133.2

150

1	15.0
2	30.0
3	45.0
4	60.0
5	75.0
6	90.0
7	105.0
8	120.0
9	135.0

152

1	15.2
2	30.4
3	45.6
4	60.8
5	76.0
6	91.2
7	106.4
8	121.6
9	136.8

154

1	15.4
2	30.8
3	46.2
4	61.6
5	77.0
6	92.4
7	107.8
8	123.2
9	138.6

156

1	15.6
2	31.2
3	46.8
4	62.4
5	78.0
6	93.6
7	109.2
8	124.8
9	140.4

159

1	15·9
2	31.8
3	47·7
4	63.6
5	79·5
6	95.4
7	111.3
8	127.2
9	143.1

79°

10°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.176512		0.179328		1.015952		5.66533		5.57638		0.984298		**50′** 0″
10	6560	48	9378	50	5961	9	6380	153	7482	156	4290	8	50
20	6608	48	9428	50	5970	9	6227	153	7327	155	4281	9	40
30	6655	47	9478	50	5979	9	6074	153	7171	156	4273	8	30
40	6703	48	9528	50	5987	8	5921	153	7016	155	4264	9	20
50	6751	48	9578	50	5996	9	5769	152	6861	155	4256	8	10
11 0	0.176798	47	0.179628	50	1.016005	9	5.65616	153	5.56706	155	0.984247	9	**49** 0
10	6846	48	9678	50	6014	9	5463	153	6551	155	4239	8	50
20	6894	48	9728	50	6023	9	5311	152	6396	155	4230	9	40
30	6942	48	9778	50	6032	9	5158	153	6241	155	4221	9	30
40	6989	47	9828	50	6040	8	5006	152	6086	155	4213	8	20
50	7037	48	9878	50	6049	9	4854	152	5931	155	4204	9	10
12 0	0.177085	48	0.179928	50	1.016058	9	5.64701	153	5.55777	154	0.984196	8	**48** 0
10	7132	47	0.179978	50	6067	9	4549	152	5622	155	4187	9	50
20	7180	48	0.180029	51	6076	9	4397	152	5468	154	4178	9	40
30	7228	48	0079	50	6085	9	4245	152	5313	155	4170	8	30
40	7276	48	0129	50	6094	9	4093	152	5159	154	4161	9	20
50	7323	47	0179	50	6103	9	3942	151	5005	154	4153	8	10
13 0	0.177371	48	0.180229	50	1.016111	8	5.63790	152	5.54851	154	0.984144	9	**47** 0
10	7419	48	0279	50	6120	9	3638	152	4696	155	4135	9	50
20	7466	47	0329	50	6129	9	3487	151	4542	154	4127	8	40
30	7514	48	0379	50	6138	9	3335	152	4389	153	4118	9	30
40	7562	48	0429	50	6147	9	3184	151	4235	154	4110	8	20
50	7610	48	0479	50	6156	9	3033	151	4081	154	4101	9	10
14 0	0.177657	47	0.180529	50	1.016165	9	5.62881	152	5.53927	154	0.984092	9	**46** 0
10	7705	48	0579	50	6174	9	2730	151	3774	153	4084	8	50
20	7753	48	0629	50	6183	9	2579	151	3620	154	4075	9	40
30	7800	47	0679	50	6191	8	2428	151	3467	153	4067	8	30
40	7848	48	0729	50	6200	9	2277	151	3314	153	4058	9	20
50	7896	48	0779	50	6209	9	2127	150	3160	154	4049	9	10
15 0	0.177944	48	0.180829	50	1.016218	9	5.61976	151	5.53007	153	0.984041	8	**45** 0
10	7991	47	0880	51	6227	9	1825	151	2854	153	4032	9	50
20	8039	48	0930	50	6236	9	1675	150	2701	153	4023	9	40
30	8087	48	0980	50	6245	9	1524	151	2548	153	4015	8	30
40	8134	47	1030	50	6254	9	1374	150	2395	153	4006	9	20
50	8182	48	1080	50	6263	9	1224	150	2243	152	3998	8	10
16 0	0.178230	48	0.181130	50	1.016272	9	5.61073	151	5.52090	153	0.983989	9	**44** 0
10	8277	47	1180	50	6281	9	0923	150	1937	153	3980	9	50
20	8325	48	1230	50	6289	8	0773	150	1785	152	3972	8	40
30	8373	48	1280	50	6298	9	0623	150	1633	152	3963	9	30
40	8421	48	1330	50	6307	9	0473	150	1480	153	3954	9	20
50	8468	47	1380	50	6316	9	0324	149	1328	152	3946	8	10
17 0	0.178516	48	0.181430	50	1.016325	9	5.60174	150	5.51176	152	0.983937	9	**43** 0
10	8564	48	1480	50	6334	9	5.60024	150	1024	152	3928	9	50
20	8611	47	1530	50	6343	9	5.59875	149	0872	152	3920	8	40
30	8659	48	1581	51	6352	9	9725	150	0720	152	3911	9	30
40	8707	48	1631	50	6361	9	9576	149	0568	152	3902	9	20
50	8755	48	1681	50	6370	9	9426	150	0416	152	3894	8	10
18 0	0.178802	47	0.181731	50	1.016379	9	5.59277	149	5.50264	152	0.983885	9	**42** 0
10	8850	48	1781	50	6388	9	9128	149	5.50113	151	3876	9	50
20	8898	48	1831	50	6397	9	8979	149	5.49961	152	3868	8	40
30	8945	47	1881	50	6406	9	8830	149	9810	151	3859	9	30
40	8993	48	1931	50	6415	9	8681	149	9659	151	3850	9	20
50	9041	48	1981	50	6424	9	8532	149	9507	152	3842	8	10
19 0	0.179088	47	0.182031	50	1.016433	9	5.58383	149	5.49356	151	0.983833	9	**41** 0
10	9136	48	2081	50	6442	9	8235	148	9205	151	3824	9	50
20	9184	48	2131	50	6451	9	8086	149	9054	151	3816	8	40
30	9231	47	2182	51	6460	9	7938	148	8903	151	3807	9	30
40	9279	48	2232	50	6469	9	7789	149	8752	151	3798	9	20
50	9327	48	2282	50	6478	9	7641	148	8601	151	3790	8	10
20 0	0.179375	48	0.182332	50	1.016487	9	5.57493	148	5.48451	150	0.983781	9	**40** 0
	cos		cotg		cosec		sec		tang		sin		

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

149	
1	14.9
2	29.8
3	44.7
4	59.6
5	74.5
6	89.4
7	104.3
8	119.2
9	134.1

151	
1	15.1
2	30.2
3	45.3
4	60.4
5	75.5
6	90.6
7	105.7
8	120.8
9	135.9

153	
1	15.3
2	30.6
3	45.9
4	61.2
5	76.5
6	91.8
7	107.1
8	122.4
9	137.7

155	
1	15.5
2	31.0
3	46.5
4	62.0
5	77.5
6	93.0
7	108.5
8	124.0
9	139.5

157	
1	15.7
2	31.4
3	47.1
4	62.8
5	78.5
6	94.2
7	109.9
8	125.6
9	141.3

161	
1	16.1
2	32.2
3	48.3
4	64.4
5	80.5
6	96.6
7	112.7
8	128.8
9	144.9

79°

10°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.179375		0.182332		1.016487		5·57493		5·48451		0.9837781		**40′** 0″
10	9422	47	2382	50	6496	9	7344	149	8300	151	3772	9	50
20	9470	48	2432	50	6505	9	7196	148	8149	151	3763	9	40
30	9518	48	2482	50	6514	9	7048	148	7999	150	3755	8	30
40	9565	47	2532	50	6523	9	6900	148	7848	151	3746	9	20
50	9613	48	2582	50	6532	9	6752	148	7698	150	3737	9	10
21 0	0.179661	48	0.182632	50	1.016541	9	5·56605	147	5·47548	150	0.9837729	8	**39** 0
10	9708	47	2683	51	6550	9	6457	148	7398	150	3720	9	50
20	9756	48	2733	50	6559	9	6309	148	7248	150	3711	9	40
30	9804	48	2783	50	6568	9	6162	147	7098	150	3702	9	30
40	9852	48	2833	50	6577	9	6014	148	6948	150	3694	8	20
50	9899	47	2883	50	6586	9	5867	147	6798	150	3685	9	10
22 0	0.179947	48	0.182933	50	1.016595	9	5·55720	147	5·46648	150	0.9837676	9	**38** 0
10	0.179995	48	2983	50	6604	9	5572	148	6498	150	3668	8	50
20	0.180042	47	3033	50	6613	9	5425	147	6349	149	3659	9	40
30	0090	48	3083	50	6622	9	5278	147	6199	150	3650	9	30
40	0138	48	3133	50	6631	9	5131	147	6050	149	3641	9	20
50	0185	47	3184	51	6640	9	4984	147	5901	149	3633	8	10
23 0	0.180233	48	0.183234	50	1.016649	9	5·54837	147	5·45751	150	0.9837624	9	**37** 0
10	0281	48	3284	50	6658	9	4690	147	5602	149	3615	9	50
20	0328	47	3334	50	6667	9	4544	146	5453	149	3606	9	40
30	0376	48	3384	50	6676	9	4397	147	5304	149	3598	8	30
40	0424	48	3434	50	6685	9	4251	146	5155	149	3589	9	20
50	0471	47	3484	50	6694	9	4104	147	5006	149	3580	9	10
24 0	0.180519	48	0.183534	50	1.016703	9	5·53958	146	5·44857	149	0.9837571	9	**36** 0
10	0567	48	3584	50	6712	9	3812	146	4708	149	3563	8	50
20	0615	48	3635	51	6721	9	3665	147	4560	148	3554	9	40
30	0662	47	3685	50	6730	9	3519	146	4411	149	3545	9	30
40	0710	48	3735	50	6739	9	3373	146	4263	148	3536	9	20
50	0758	48	3785	50	6748	9	3227	146	4114	149	3528	8	10
25 0	0.180805	47	0.183835	50	1.016757	9	5·53081	146	5·43966	148	0.9837519	9	**35** 0
10	0853	48	3885	50	6766	9	2935	146	3818	148	3510	9	50
20	0901	48	3935	50	6775	9	2790	145	3669	149	3501	9	40
30	0948	47	3985	50	6784	9	2644	146	3521	148	3493	8	30
40	0996	48	4036	51	6794	10	2498	146	3373	148	3484	9	20
50	1044	48	4086	50	6803	9	2353	145	3225	148	3475	9	10
26 0	0.181091	47	0.184136	50	1.016812	9	5·52208	145	5·43077	148	0.9837466	9	**34** 0
10	1139	48	4186	50	6821	9	2062	146	2930	147	3458	8	50
20	1187	48	4236	50	6830	9	1917	145	2782	148	3449	9	40
30	1234	47	4286	50	6839	9	1772	145	2634	148	3440	9	30
40	1282	48	4336	50	6848	9	1627	145	2487	147	3431	9	20
50	1330	48	4386	50	6857	9	1482	145	2339	148	3422	9	10
27 0	0.181377	47	0.184437	51	1.016866	9	5·51337	145	5·42192	147	0.9837414	8	**33** 0
10	1425	48	4487	50	6875	9	1192	145	2045	147	3405	9	50
20	1473	48	4537	50	6884	9	1047	145	1897	148	3396	9	40
30	1520	47	4587	50	6893	9	0902	145	1750	147	3387	9	30
40	1568	48	4637	50	6903	10	0758	144	1603	147	3378	9	20
50	1616	48	4687	50	6912	9	0613	145	1456	147	3370	8	10
28 0	0.181663	47	0.184737	50	1.016921	9	5·50468	145	5·41309	147	0.9837361	9	**32** 0
10	1711	48	4787	50	6930	9	0324	144	1162	147	3352	9	50
20	1759	48	4838	51	6939	9	0180	144	1015	147	3343	9	40
30	1806	47	4888	50	6948	9	5·50035	145	0869	146	3334	9	30
40	1854	48	4938	50	6957	9	5·49891	144	0722	147	3326	8	20
50	1902	48	4988	50	6966	9	9747	144	0575	147	3317	9	10
29 0	0.181950	48	0.185038	50	1.016975	9	5·49603	144	5·40429	146	0.9833308	9	**31** 0
10	1997	47	5088	50	6985	10	9459	144	0283	146	3299	9	50
20	2045	48	5138	50	6994	9	9315	144	5·40136	147	3290	9	40
30	2093	48	5189	51	7003	9	9171	144	5·39990	146	3281	9	30
40	2140	47	5239	50	7012	9	9028	143	9844	146	3273	8	20
50	2188	48	5289	50	7021	9	8884	144	9698	146	3264	9	10
30 0	0.182236	48	0.185339	50	1.017030	9	5·48740	144	5·39552	146	0.9833255	9	**30** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4·7
2	9·4
3	14.1
4	18.8
5	23·5
6	28.2
7	32·9
8	37.6
9	42·3

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

139

1	13.9
2	27.8
3	41.7
4	55.6
5	69.5
6	83.4
7	97·3
8	111.2
9	125.1

141

1	14.1
2	28.2
3	42.3
4	56.4
5	70.5
6	84.6
7	98·7
8	112.8
9	126.9

143

1	14.3
2	28.6
3	42.9
4	57·2
5	71.5
6	85.8
7	100.1
8	114.4
9	128.7

145

1	14.5
2	29.0
3	43.5
4	58.0
5	72.5
6	87.0
7	101.5
8	116.0
9	130.5

147

1	14.7
2	29.4
3	44.1
4	58.8
5	73·5
6	88.2
7	102.9
8	117.6
9	132.3

149

1	14.9
2	29.8
3	44·7
4	59.6
5	74.5
6	89.4
7	104.3
8	119.2
9	134.1

79°

10°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.182236		0.185339		1.017030		5.48740		5.39552		0.983255		**30′** 0″
10	2283	47	5389	50	7039	9	8597	143	9406	146	3246	9	50
20	2331	48	5439	50	7049	10	8453	144	9260	146	3237	9	40
30	2379	48	5489	50	7058	9	8310	143	9114	146	3228	9	30
40	2426	47	5540	51	7067	9	8167	143	8968	146	3220	8	20
50	2474	48	5590	50	7076	9	8024	143	8823	145	3211	9	10
31 0	0.182522	48	0.185640	50	1.017085	9	5.47881	143	5.38677	146	0.983202	9	**29** 0
10	2569	47	5690	50	7094	9	7738	143	8532	145	3193	9	50
20	2617	48	5740	50	7103	9	7595	143	8386	146	3184	9	40
30	2665	48	5790	50	7113	10	7452	143	8241	145	3175	9	30
40	2712	47	5841	51	7122	9	7309	143	8096	145	3166	9	20
50	2760	48	5891	50	7131	9	7166	143	7950	146	3158	8	10
32 0	0.182808	48	0.185941	50	1.017140	9	5.47023	143	5.37805	145	0.983149	9	**28** 0
10	2855	47	5991	50	7149	9	6881	142	7660	145	3140	9	50
20	2903	48	6041	50	7158	9	6738	143	7515	145	3131	9	40
30	2951	48	6091	50	7168	10	6596	142	7370	145	3122	9	30
40	2998	47	6142	51	7177	9	6454	142	7226	144	3113	9	20
50	3046	48	6192	50	7186	9	6311	143	7081	145	3104	9	10
33 0	0.183094	48	0.186242	50	1.017195	9	5.46169	142	5.36936	145	0.983096	8	**27** 0
10	3141	47	6292	50	7204	9	6027	142	6792	144	3087	9	50
20	3189	48	6342	50	7214	10	5885	142	6647	145	3078	9	40
30	3236	47	6392	50	7223	9	5743	142	6503	144	3069	9	30
40	3284	48	6442	50	7232	9	5601	142	6358	145	3060	9	20
50	3332	48	6493	51	7241	9	5459	142	6214	144	3051	9	10
34 0	0.183379	47	0.186543	50	1.017250	9	5.45317	142	5.36070	144	0.983042	9	**26** 0
10	3427	48	6593	50	7260	10	5176	141	5926	144	3033	9	50
20	3475	48	6643	50	7269	9	5034	142	5782	144	3024	9	40
30	3522	47	6693	50	7278	9	4892	142	5638	144	3016	8	30
40	3570	48	6744	51	7287	9	4751	141	5494	144	3007	9	20
50	3618	48	6794	50	7296	9	4610	141	5350	144	2998	9	10
35 0	0.183665	47	0.186844	50	1.017306	10	5.44468	142	5.35206	144	0.982989	9	**25** 0
10	3713	48	6894	50	7315	9	4327	141	5063	143	2980	9	50
20	3761	48	6944	50	7324	9	4186	141	4919	144	2971	9	40
30	3808	47	6994	50	7333	9	4045	141	4775	144	2962	9	30
40	3856	48	7045	51	7342	9	3904	141	4632	143	2953	9	20
50	3904	48	7095	50	7352	10	3763	141	4489	143	2944	9	10
36 0	0.183951	47	0.187145	50	1.017361	9	5.43622	141	5.34345	144	0.982935	9	**24** 0
10	3999	48	7195	50	7370	9	3481	141	4202	143	2926	9	50
20	4047	48	7245	50	7379	9	3340	141	4059	143	2918	8	40
30	4094	47	7295	50	7389	10	3200	140	3916	143	2909	9	30
40	4142	48	7346	51	7398	9	3059	141	3773	143	2900	9	20
50	4190	48	7396	50	7407	9	2919	140	3630	143	2891	9	10
37 0	0.184237	47	0.187446	50	1.017416	9	5.42778	141	5.33487	143	0.982882	9	**23** 0
10	4285	48	7496	50	7426	10	2638	140	3344	143	2873	9	50
20	4333	48	7546	50	7435	9	2498	140	3201	143	2864	9	40
30	4380	47	7597	51	7444	9	2358	140	3059	142	2855	9	30
40	4428	48	7647	50	7453	9	2217	141	2916	143	2846	9	20
50	4476	48	7697	50	7463	10	2077	140	2774	142	2837	9	10
38 0	0.184523	47	0.187747	50	1.017472	9	5.41937	140	5.32631	143	0.982828	9	**22** 0
10	4571	48	7797	50	7481	9	1797	140	2489	142	2819	9	50
20	4618	47	7848	51	7490	9	1658	139	2347	142	2810	9	40
30	4666	48	7898	50	7500	10	1518	140	2204	143	2801	9	30
40	4714	48	7948	50	7509	9	1378	140	2062	142	2792	9	20
50	4761	47	7998	50	7518	9	1239	139	1920	142	2783	9	10
39 0	0.184809	48	0.188048	50	1.017527	9	5.41099	140	5.31778	142	0.982774	9	**21** 0
10	4857	48	8098	50	7537	10	0960	139	1636	142	2765	9	50
20	4904	47	8149	51	7546	9	0820	140	1495	141	2757	8	40
30	4952	48	8199	50	7555	9	0681	139	1353	142	2748	9	30
40	5000	48	8249	50	7565	10	0542	139	1211	142	2739	9	20
50	5047	47	8299	50	7574	9	0402	140	1069	142	2730	9	10
40 0	0.185095	48	0.188349	50	1.017583	9	5.40263	139	5.30928	141	0.982721	9	**20** 0
	cos		cotg		cosec		sec		tang		sin		

48		51		140		142		144		146		148		151	
1	4.8	1	5.1	1	14.0	1	14.2	1	14.4	1	14.6	1	14.8	1	15.1
2	9.6	2	10.2	2	28.0	2	28.4	2	28.8	2	29.2	2	29.6	2	30.2
3	14.4	3	15.3	3	42.0	3	42.6	3	43.2	3	43.8	3	44.4	3	45.3
4	19.2	4	20.4	4	56.0	4	56.8	4	57.6	4	58.4	4	59.2	4	60.4
5	24.0	5	25.5	5	70.0	5	71.0	5	72.0	5	73.0	5	74.0	5	75.5
6	28.8	6	30.6	6	84.0	6	85.2	6	86.4	6	87.6	6	88.8	6	90.6
7	33.6	7	35.7	7	98.0	7	99.4	7	100.8	7	102.2	7	103.6	7	105.7
8	38.4	8	40.8	8	112.0	8	113.6	8	115.2	8	116.8	8	118.4	8	120.8
9	43.2	9	45.9	9	126.0	9	127.8	9	129.6	9	131.4	9	133.2	9	135.9

79°

10°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.185095		0.188349		1.017583		5.40263		5.30928		0.982721		**20′** 0″
10	5143	48	8400	51	7592	9	5.40124	139	0786	142	2712	9	50
20	5190	47	8450	50	7602	10	5.39985	139	0645	141	2703	9	40
30	5238	48	8500	50	7611	9	9846	139	0504	141	2694	9	30
40	5285	47	8550	50	7620	9	9708	138	0362	142	2685	9	20
50	5333	48	8600	50	7630	10	9569	139	0221	141	2676	9	10
41 0	0.185381	48	0.188651	51	1.017639	9	5.39430	139	5.30080	141	0.982667	9	**19** 0
10	5428	47	8701	50	7648	9	9292	138	5.29939	141	2658	9	50
20	5476	48	8751	50	7658	10	9153	139	9798	141	2649	9	40
30	5524	48	8801	50	7667	9	9015	138	9657	141	2640	9	30
40	5571	47	8852	51	7676	9	8876	139	9516	141	2631	9	20
50	5619	48	8902	50	7686	10	8738	138	9376	140	2622	9	10
42 0	0.185667	48	0.188952	50	1.017695	9	5.38600	138	5.29235	141	0.982613	9	**18** 0
10	5714	47	9002	50	7704	9	8462	138	9094	141	2604	9	50
20	5762	48	9052	50	7714	10	8324	138	8954	140	2595	9	40
30	5810	48	9103	51	7723	9	8186	138	8813	141	2586	9	30
40	5857	47	9153	50	7732	9	8048	138	8673	140	2577	9	20
50	5905	48	9203	50	7742	10	7910	138	8533	140	2568	9	10
43 0	0.185952	47	0.189253	50	1.017751	9	5.37772	138	5.28393	140	0.982559	9	**17** 0
10	6000	48	9303	50	7760	9	7634	138	8252	141	2550	9	50
20	6048	48	9354	51	7770	10	7497	137	8112	140	2541	9	40
30	6095	47	9404	50	7779	9	7359	138	7972	140	2532	9	30
40	6143	48	9454	50	7788	9	7221	138	7832	140	2523	9	20
50	6191	48	9504	50	7798	10	7084	137	7692	140	2514	9	10
44 0	0.186238	47	0.189555	51	1.017807	9	5.36947	137	5.27553	139	0.982505	9	**16** 0
10	6286	48	9605	50	7816	9	6809	138	7413	140	2496	9	50
20	6334	48	9655	50	7826	10	6672	137	7273	140	2487	9	40
30	6381	47	9705	50	7835	9	6535	137	7134	139	2478	9	30
40	6429	48	9755	50	7844	9	6398	137	6994	140	2468	10	20
50	6476	47	9806	51	7854	10	6261	137	6855	139	2459	9	10
45 0	0.186524	48	0.189856	50	1.017863	9	5.36124	137	5.26715	140	0.982450	9	**15** 0
10	6572	48	9906	50	7872	9	5987	137	6576	139	2441	9	50
20	6619	47	0.189956	50	7882	10	5850	137	6437	139	2432	9	40
30	6667	48	0.190007	51	7891	9	5714	136	6297	140	2423	9	30
40	6715	48	0057	50	7901	10	5577	137	6158	139	2414	9	20
50	6762	47	0107	50	7910	9	5440	137	6019	139	2405	9	10
46 0	0.186810	48	0.190157	50	1.017919	9	5.35304	136	5.25880	139	0.982396	9	**14** 0
10	6857	47	0208	51	7929	10	5167	137	5741	139	2387	9	50
20	6905	48	0258	50	7938	9	5031	136	5603	138	2378	9	40
30	6953	48	0308	50	7948	10	4895	136	5464	139	2369	9	30
40	7000	47	0358	50	7957	9	4758	137	5325	139	2360	9	20
50	7048	48	0409	51	7966	9	4622	136	5187	138	2351	9	10
47 0	0.187096	48	0.190459	50	1.017976	10	5.34486	136	5.25048	139	0.982342	9	**13** 0
10	7143	47	0509	50	7985	9	4350	136	4910	138	2333	9	50
20	7191	48	0559	50	7995	10	4214	136	4771	139	2324	9	40
30	7238	47	0609	50	8004	9	4078	136	4633	138	2314	10	30
40	7286	48	0660	51	8013	9	3943	135	4495	138	2305	9	20
50	7334	48	0710	50	8023	10	3807	136	4356	139	2296	9	10
48 0	0.187381	47	0.190760	50	1.018032	9	5.33671	136	5.24218	138	0.982287	9	**12** 0
10	7429	48	0810	50	8042	10	3536	135	4080	138	2278	9	50
20	7477	48	0861	51	8051	9	3400	136	3942	138	2269	9	40
30	7524	47	0911	50	8060	9	3265	135	3804	138	2260	9	30
40	7572	48	0961	50	8070	10	3129	136	3667	137	2251	9	20
50	7619	47	1011	50	8079	9	2994	135	3529	138	2242	9	10
49 0	0.187667	48	0.191062	51	1.018089	10	5.32859	135	5.23391	138	0.982233	9	**11** 0
10	7715	48	1112	50	8098	9	2723	136	3254	137	2224	9	50
20	7762	47	1162	50	8108	10	2588	135	3116	138	2215	9	40
30	7810	48	1212	50	8117	9	2453	135	2978	138	2205	10	30
40	7858	48	1263	51	8126	9	2318	135	2841	137	2196	9	20
50	7905	47	1313	50	8136	10	2183	135	2704	137	2187	9	10
50 0	0.187953	48	0.191363	50	1.018145	9	5.32049	134	5.22566	138	0.982178	9	**10** 0
	cos		cotg		cosec		sec		tang		sin		

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

131

1	13.1
2	26.2
3	39.3
4	52.4
5	65.5
6	78.6
7	91.7
8	104.8
9	117.9

133

1	13.3
2	26.6
3	39.9
4	53.2
5	66.5
6	79.8
7	93.1
8	106.4
9	119.7

135

1	13.5
2	27.0
3	40.5
4	54.0
5	67.5
6	81.0
7	94.5
8	108.0
9	121.5

137

1	13.7
2	27.4
3	41.1
4	54.8
5	68.5
6	82.2
7	95.9
8	109.6
9	123.3

139

1	13.9
2	27.8
3	41.7
4	55.6
5	69.5
6	83.4
7	97.3
8	111.2
9	125.1

141

1	14.1
2	28.2
3	42.3
4	56.4
5	70.5
6	84.6
7	98.7
8	112.8
9	126.9

79°

10°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.187953		0.191363		1.018145		5.32049		5.22566		0.982178		**10′** 0″
10	8000	47	1413	50	8155	10	1914	135	2429	137	2169	9	50
20	8048	48	1464	51	8164	9	1779	135	2292	137	2160	9	40
30	8096	48	1514	50	8174	10	1645	134	2155	137	2151	9	30
40	8143	47	1564	50	8183	9	1510	135	2018	137	2142	9	20
50	8191	48	1615	51	8193	10	1376	134	1881	137	2132	10	10
51 0	0.188238	47	0.191665	50	1.018202	9	5.31241	135	5.21744	137	0.982123	9	**9** 0
10	8286	48	1715	50	8211	9	1107	134	1607	137	2114	9	50
20	8334	48	1765	50	8221	10	0972	135	1471	136	2105	9	40
30	8381	47	1816	51	8230	9	0838	134	1334	137	2096	9	30
40	8429	48	1866	50	8240	10	0704	134	1198	136	2087	9	20
50	8477	48	1916	50	8249	9	0570	134	1061	137	2078	9	10
52 0	0.188524	47	0.191966	50	1.018259	10	5.30436	134	5.20925	136	0.982069	9	**8** 0
10	8572	48	2017	51	8268	9	0302	134	0788	137	2059	10	50
20	8619	47	2067	50	8278	10	0168	134	0652	136	2050	9	40
30	8667	48	2117	50	8287	9	5.30034	134	0516	136	2041	9	30
40	8715	48	2167	50	8297	10	5.29901	133	0380	136	2032	9	20
50	8762	47	2218	51	8306	9	9767	134	0243	137	2023	9	10
53 0	0.188810	48	0.192268	50	1.018316	10	5.29634	133	5.20107	136	0.982014	9	**7** 0
10	8857	47	2318	50	8325	9	9500	134	5.19971	136	2005	9	50
20	8905	48	2369	51	8335	10	9367	133	9836	135	1995	10	40
30	8953	48	2419	50	8344	9	9233	134	9700	136	1986	9	30
40	9000	47	2469	50	8354	10	9100	133	9564	136	1977	9	20
50	9048	48	2519	50	8363	9	8967	133	9428	136	1968	9	10
54 0	0.189095	47	0.192570	51	1.018373	10	5.28833	134	5.19293	135	0.981959	9	**6** 0
10	9143	48	2620	50	8382	9	8700	133	9157	136	1950	9	50
20	9191	48	2670	50	8392	10	8567	133	9022	135	1940	10	40
30	9238	47	2720	50	8401	9	8434	133	8886	136	1931	9	30
40	9286	48	2771	51	8411	10	8301	133	8751	135	1922	9	20
50	9333	47	2821	50	8420	9	8169	132	8616	135	1913	9	10
55 0	0.189381	48	0.192871	50	1.018430	10	5.28036	133	5.18480	136	0.981904	9	**5** 0
10	9429	48	2922	51	8439	9	7903	133	8345	135	1894	10	50
20	9476	47	2972	50	8449	10	7771	132	8210	135	1885	9	40
30	9524	48	3022	50	8458	9	7638	133	8075	135	1876	9	30
40	9571	47	3072	50	8468	10	7505	133	7940	135	1867	9	20
50	9619	48	3123	51	8477	9	7373	132	7805	135	1858	9	10
56 0	0.189667	48	0.193173	50	1.018487	10	5.27241	132	5.17671	134	0.981849	9	**4** 0
10	9714	47	3223	50	8497	10	7108	133	7536	135	1839	10	50
20	9762	48	3274	51	8506	9	6976	132	7401	135	1830	9	40
30	9809	47	3324	50	8516	10	6844	132	7267	134	1821	9	30
40	9857	48	3374	50	8525	9	6712	132	7132	135	1812	9	20
50	9905	48	3425	51	8535	10	6580	132	6998	134	1803	9	10
57 0	0.189952	47	0.193475	50	1.018544	9	5.26448	132	5.16863	135	0.981793	10	**3** 0
10	0.190000	48	3525	50	8554	10	6316	132	6729	134	1784	9	50
20	0047	47	3575	50	8563	9	6184	132	6595	134	1775	9	40
30	0095	48	3626	51	8573	10	6053	131	6460	135	1766	9	30
40	0143	48	3676	50	8583	10	5921	132	6326	134	1756	10	20
50	0190	47	3726	50	8592	9	5789	132	6192	134	1747	9	10
58 0	0.190238	48	0.193777	51	1.018602	10	5.25658	131	5.16058	134	0.981738	9	**2** 0
10	0285	47	3827	50	8611	9	5526	132	5924	134	1729	9	50
20	0333	48	3877	50	8621	10	5395	131	5790	134	1720	9	40
30	0381	48	3928	51	8630	9	5263	132	5657	133	1710	10	30
40	0428	47	3978	50	8640	10	5132	131	5523	134	1701	9	20
50	0476	48	4028	50	8650	10	5001	131	5389	134	1692	9	10
59 0	0.190523	47	0.194078	50	1.018659	9	5.24870	131	5.15256	133	0.981683	9	**1** 0
10	0571	48	4129	51	8669	10	4739	131	5122	134	1673	10	50
20	0619	48	4179	50	8678	9	4608	131	4989	133	1664	9	40
30	0666	47	4229	50	8688	10	4477	131	4855	134	1655	9	30
40	0714	48	4280	51	8697	9	4346	131	4722	133	1646	9	20
50	0761	47	4330	50	8707	10	4215	131	4589	133	1636	10	10
60 0	0.190809	48	0.194380	50	1.018717	10	5.24084	131	5.14455	134	0.981627	9	**0** 0
	cos		cotg		cosec		sec		tang		sin		

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8	38.4
9	43.2

51	
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4	20.4
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6	30.6
7	35.7
8	40.8
9	45.9

132	
1	13.2
2	26.4
3	39.6
4	52.8
5	66.0
6	79.2
7	92.4
8	105.6
9	118.8

134	
1	13.4
2	26.8
3	40.2
4	53.6
5	67.0
6	80.4
7	93.8
8	107.2
9	120.6

136	
1	13.6
2	27.2
3	40.8
4	54.4
5	68.0
6	81.6
7	95.2
8	108.8
9	122.4

138	
1	13.8
2	27.6
3	41.4
4	55.2
5	69.0
6	82.8
7	96.6
8	110.4
9	124.2

140	
1	14.0
2	28.0
3	42.0
4	56.0
5	70.0
6	84.0
7	98.0
8	112.0
9	126.0

142	
1	14.2
2	28.4
3	42.6
4	56.8
5	71.0
6	85.2
7	99.4
8	113.6
9	127.8

79°

11°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.190809		0.194380		1.018717		5.24084		5.14455		0.981627		**60′** 0″
10	0857	48	4431	51	8726	9	3954	130	4322	133	1618	9	50
20	0904	47	4481	50	8736	10	3823	131	4189	133	1609	9	40
30	0952	48	4531	50	8746	10	3692	131	4056	133	1599	10	30
40	0999	47	4582	51	8755	9	3562	130	3923	133	1590	9	20
50	1047	48	4632	50	8765	10	3432	130	3790	133	1581	9	10
1 0	0.191095	48	0.194682	50	1.018774	9	5.23301	131	5.13658	132	0.981572	9	**59** 0
10	1142	47	4733	51	8784	10	3171	130	3525	133	1562	10	50
20	1190	48	4783	50	8794	10	3041	130	3392	133	1553	9	40
30	1237	47	4833	50	8803	9	2911	130	3260	132	1544	9	30
40	1285	48	4883	50	8813	10	2780	131	3127	133	1535	9	20
50	1332	47	4934	51	8822	9	2650	130	2995	132	1525	10	10
2 0	0.191380	48	0.194984	50	1.018832	10	5.22521	129	5.12862	133	0.981516	9	**58** 0
10	1428	48	5034	50	8842	10	2391	130	2730	132	1507	9	50
20	1475	47	5085	51	8851	9	2261	130	2598	132	1497	10	40
30	1523	48	5135	50	8861	10	2131	130	2465	133	1488	9	30
40	1570	47	5185	50	8871	10	2001	130	2333	132	1479	9	20
50	1618	48	5236	51	8880	9	1872	129	2201	132	1470	9	10
3 0	0.191666	48	0.195286	50	1.018890	10	5.21742	130	5.12069	132	0.981460	10	**57** 0
10	1713	47	5336	50	8900	10	1613	129	1937	132	1451	9	50
20	1761	48	5387	51	8909	9	1483	130	1805	132	1442	9	40
30	1808	47	5437	50	8919	10	1354	129	1674	131	1432	10	30
40	1856	48	5487	50	8929	10	1225	129	1542	132	1423	9	20
50	1903	47	5538	51	8938	9	1095	130	1410	132	1414	9	10
4 0	0.191951	48	0.195588	50	1.018948	10	5.20966	129	5.11279	131	0.981405	9	**56** 0
10	1999	48	5638	50	8958	10	0837	129	1147	132	1395	10	50
20	2046	47	5689	51	8967	9	0708	129	1016	131	1386	9	40
30	2094	48	5739	50	8977	10	0579	129	0884	132	1377	9	30
40	2141	47	5789	50	8987	10	0450	129	0753	131	1367	10	20
50	2189	48	5840	51	8996	9	0321	129	0621	132	1358	9	10
5 0	0.192237	48	0.195890	50	1.019006	10	5.20193	128	5.10490	131	0.981349	9	**55** 0
10	2284	47	5940	50	9016	10	5.20064	129	0359	131	1339	10	50
20	2332	48	5991	51	9025	9	5.19935	129	0228	131	1330	9	40
30	2379	47	6041	50	9035	10	9807	128	5.10097	131	1321	9	30
40	2427	48	6092	51	9045	10	9678	129	5.09966	131	1311	10	20
50	2474	47	6142	50	9054	9	9550	128	9835	131	1302	9	10
6 0	0.192522	48	0.196192	50	1.019064	10	5.19421	129	5.09704	131	0.981293	9	**54** 0
10	2570	48	6243	51	9074	10	9293	128	9573	131	1283	10	50
20	2617	47	6293	50	9083	9	9165	128	9443	130	1274	9	40
30	2665	48	6343	50	9093	10	9036	129	9312	131	1265	9	30
40	2712	47	6394	51	9103	10	8908	128	9182	130	1255	10	20
50	2760	48	6444	50	9112	9	8780	128	9051	131	1246	9	10
7 0	0.192807	47	0.196494	50	1.019122	10	5.18652	128	5.08921	130	0.981237	9	**53** 0
10	2855	48	6545	51	9132	10	8524	128	8790	131	1227	10	50
20	2903	48	6595	50	9142	10	8396	128	8660	130	1218	9	40
30	2950	47	6645	50	9151	9	8269	127	8530	130	1209	9	30
40	2998	48	6696	51	9161	10	8141	128	8399	131	1199	10	20
50	3045	47	6746	50	9171	10	8013	128	8269	130	1190	9	10
8 0	0.193093	48	0.196796	50	1.019180	9	5.17886	127	5.08139	130	0.981180	10	**52** 0
10	3140	47	6847	51	9190	10	7758	128	8009	130	1171	9	50
20	3188	48	6897	50	9200	10	7631	127	7879	130	1162	9	40
30	3236	48	6948	51	9210	10	7503	128	7749	130	1152	10	30
40	3283	47	6998	50	9219	9	7376	127	7620	129	1143	9	20
50	3331	48	7048	50	9229	10	7249	127	7490	130	1134	9	10
9 0	0.193378	47	0.197099	51	1.019239	10	5.17121	128	5.07360	130	0.981124	10	**51** 0
10	3426	48	7149	50	9249	10	6994	127	7231	129	1115	9	50
20	3473	47	7199	50	9258	9	6867	127	7101	130	1106	9	40
30	3521	48	7250	51	9268	10	6740	127	6972	129	1096	10	30
40	3568	47	7300	50	9278	10	6613	127	6842	130	1087	9	20
50	3616	48	7350	50	9288	10	6486	127	6713	129	1077	10	10
10 0	0.193664	48	0.197401	51	1.019297	9	5.16359	127	5.06584	129	0.981068	9	**50** 0
	cos		cotg		cosec		sec		tang		sin		

47

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3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

123

1	12.3
2	24.6
3	36.9
4	49.2
5	61.5
6	73.8
7	86.1
8	98.4
9	110.7

125

1	12.5
2	25.0
3	37.5
4	50.0
5	62.5
6	75.0
7	87.5
8	100.0
9	112.5

127

1	12.7
2	25.4
3	38.1
4	50.8
5	63.5
6	76.2
7	88.9
8	101.6
9	114.3

129

1	12.9
2	25.8
3	38.7
4	51.6
5	64.5
6	77.4
7	90.3
8	103.2
9	116.1

130

1	13.0
2	26.0
3	39.0
4	52.0
5	65.0
6	78.0
7	91.0
8	104.0
9	117.0

132

1	13.2
2	26.4
3	39.6
4	52.8
5	66.0
6	79.2
7	92.4
8	105.6
9	118.8

78°

11°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.193664		0.197401		1.019297		5.16359		5.06584		0.981068		**50′** 0″
10	3711	47	7451	50	9307	10	6232	127	6454	130	1059	9	50
20	3759	48	7502	51	9317	10	6106	126	6325	129	1049	10	40
30	3806	47	7552	50	9327	10	5979	127	6196	129	1040	9	30
40	3854	48	7602	50	9336	9	5852	127	6067	129	1030	10	20
50	3901	47	7653	51	9346	10	5726	126	5938	129	1021	9	10
11 0	0.193949	48	0.197703	50	1.019356	10	5.15599	127	5.05809	129	0.981012	9	**49** 0
10	3997	48	7753	50	9366	10	5473	126	5680	129	1002	10	50
20	4044	47	7804	51	9375	9	5347	126	5551	129	0993	9	40
30	4092	48	7854	50	9385	10	5220	127	5423	128	0983	10	30
40	4139	47	7905	51	9395	10	5094	126	5294	129	0974	9	20
50	4187	48	7955	50	9405	10	4968	126	5165	129	0965	9	10
12 0	0.194234	47	0.198005	50	1.019415	10	5.14842	126	5.05037	128	0.980955	10	**48** 0
10	4282	48	8056	51	9424	9	4716	126	4908	129	0946	9	50
20	4329	47	8106	50	9434	10	4590	126	4780	128	0936	10	40
30	4377	48	8156	50	9444	10	4464	126	4652	128	0927	9	30
40	4425	48	8207	51	9454	10	4338	126	4523	129	0917	10	20
50	4472	47	8257	50	9464	10	4212	126	4395	128	0908	9	10
13 0	0.194520	48	0.198308	51	1.019473	9	5.14087	125	5.04267	128	0.980899	9	**47** 0
10	4567	47	8358	50	9483	10	3961	126	4139	128	0889	10	50
20	4615	48	8408	50	9493	10	3836	125	4011	128	0880	9	40
30	4662	47	8459	51	9503	10	3710	126	3883	128	0870	10	30
40	4710	48	8509	50	9513	10	3585	125	3755	128	0861	9	20
50	4757	47	8560	51	9522	9	3459	126	3627	128	0851	10	10
14 0	0.194805	48	0.198610	50	1.019532	10	5.13334	125	5.03499	128	0.980842	9	**46** 0
10	4853	48	8660	50	9542	10	3209	125	3372	127	0833	9	50
20	4900	47	8711	51	9552	10	3083	126	3244	128	0823	10	40
30	4948	48	8761	50	9562	10	2958	125	3116	128	0814	9	30
40	4995	47	8812	51	9571	9	2833	125	2989	127	0804	10	20
50	5043	48	8862	50	9581	10	2708	125	2861	128	0795	9	10
15 0	0.195090	47	0.198912	50	1.019591	10	5.12583	125	5.02734	127	0.980785	10	**45** 0
10	5138	48	8963	51	9601	10	2458	125	2607	127	0776	9	50
20	5185	47	9013	50	9611	10	2333	125	2479	128	0766	10	40
30	5233	48	9064	51	9621	10	2209	124	2352	127	0757	9	30
40	5281	48	9114	50	9631	10	2084	125	2225	127	0747	10	20
50	5328	47	9164	50	9640	9	1959	125	2098	127	0738	9	10
16 0	0.195376	48	0.199215	51	1.019650	10	5.11835	124	5.01971	127	0.980728	10	**44** 0
10	5423	47	9265	50	9660	10	1710	125	1844	127	0719	9	50
20	5471	48	9316	51	9670	10	1586	124	1717	127	0710	9	40
30	5518	47	9366	50	9680	10	1461	125	1590	127	0700	10	30
40	5566	48	9416	50	9690	10	1337	124	1463	127	0691	9	20
50	5613	47	9467	51	9699	9	1213	124	1337	126	0681	10	10
17 0	0.195661	48	0.199517	50	1.019709	10	5.11088	125	5.01210	127	0.980672	9	**43** 0
10	5708	47	9568	51	9719	10	0964	124	1083	127	0662	10	50
20	5756	48	9618	50	9729	10	0840	124	0957	126	0653	9	40
30	5804	48	9668	50	9739	10	0716	124	0830	127	0643	10	30
40	5851	47	9719	51	9749	10	0592	124	0704	126	0634	9	20
50	5899	48	9769	50	9759	10	0468	124	0577	127	0624	10	10
18 0	0.195946	47	0.199820	51	1.019769	10	5.10344	124	5.00451	126	0.980615	9	**42** 0
10	5994	48	9870	50	9778	9	0221	123	0325	126	0605	10	50
20	6041	47	9921	51	9788	10	5.10097	124	0199	126	0596	9	40
30	6089	48	0.199971	50	9798	10	5.09973	124	5.00073	126	0586	10	30
40	6136	47	0.200021	50	9808	10	9850	123	4.99947	126	0577	9	20
50	6184	48	0072	51	9818	10	9726	124	9821	126	0567	10	10
19 0	0.196231	47	0.200122	50	1.019828	10	5.09602	124	4.99695	126	0.980558	9	**41** 0
10	6279	48	0173	51	9838	10	9479	123	9569	126	0548	10	50
20	6326	47	0223	50	9848	10	9356	123	9443	126	0539	9	40
30	6374	48	0274	51	9858	10	9232	124	9317	126	0529	10	30
40	6422	48	0324	50	9867	9	9109	123	9191	126	0520	9	20
50	6469	47	0374	50	9877	10	8986	123	9066	125	0510	10	10
20 0	0.196517	48	0.200425	51	1.019887	10	5.08863	123	4.98940	126	0.980500	10	**40** 0
	cos		cotg		cosec		sec		tang		sin		

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7	33.6
8	38.4
9	43.2

51	
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2	10.2
3	15.3
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5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

124	
1	12.4
2	24.8
3	37.2
4	49.6
5	62.0
6	74.4
7	86.8
8	99.2
9	111.6

126	
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2	25.2
3	37.8
4	50.4
5	63.0
6	75.6
7	88.2
8	100.8
9	113.4

128	
1	12.8
2	25.6
3	38.4
4	51.2
5	64.0
6	76.8
7	89.6
8	102.4
9	115.2

129	
1	12.9
2	25.8
3	38.7
4	51.6
5	64.5
6	77.4
7	90.3
8	103.2
9	116.1

131	
1	13.1
2	26.2
3	39.3
4	52.4
5	65.5
6	78.6
7	91.7
8	104.8
9	117.9

133	
1	13.3
2	26.6
3	39.9
4	53.2
5	66.5
6	79.8
7	93.1
8	106.4
9	119.7

11°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.196517		0.200425		1.019887		5.08863		4.98940		0.980500		**40′** 0″
10	6564	47	0475	50	9897	10	8740	123	8815	125	0491	9	50
20	6612	48	0526	51	9907	10	8617	123	8689	126	0481	10	40
30	6659	47	0576	50	9917	10	8494	123	8564	125	0472	9	30
40	6707	48	0627	51	9927	10	8371	123	8439	125	0462	10	20
50	6754	47	0677	50	9937	10	8248	123	8313	126	0453	9	10
21 0	0.196802	48	0.200727	50	1.019947	10	5.08125	123	4.98188	125	0.980443	10	**39** 0
10	6849	47	0778	51	9957	10	8003	122	8063	125	0434	9	50
20	6897	48	0828	50	9967	10	7880	123	7938	125	0424	10	40
30	6944	47	0879	51	9977	10	7757	123	7813	125	0415	9	30
40	6992	48	0929	50	9987	10	7635	122	7688	125	0405	10	20
50	7039	47	0980	51	1.019996	9	7513	122	7563	125	0396	9	10
22 0	0.197087	48	0.201030	50	1.020006	10	5.07390	123	4.97438	125	0.980386	10	**38** 0
10	7135	48	1080	50	0016	10	7268	122	7313	125	0376	10	50
20	7182	47	1131	51	0026	10	7146	122	7189	124	0367	9	40
30	7230	48	1181	50	0036	10	7023	123	7064	125	0357	10	30
40	7277	47	1232	51	0046	10	6901	122	6939	125	0348	9	20
50	7325	48	1282	50	0056	10	6779	122	6815	124	0338	10	10
23 0	0.197372	47	0.201333	51	1.020066	10	5.06657	122	4.96690	125	0.980329	9	**37** 0
10	7420	48	1383	50	0076	10	6535	122	6566	124	0319	10	50
20	7467	47	1434	51	0086	10	6413	122	6442	124	0309	10	40
30	7515	48	1484	50	0096	10	6291	122	6317	125	0300	9	30
40	7562	47	1534	50	0106	10	6169	122	6193	124	0290	10	20
50	7610	48	1585	51	0116	10	6048	121	6069	124	0281	9	10
24 0	0.197657	47	0.201635	50	1.020126	10	5.05926	122	4.95945	124	0.980271	10	**36** 0
10	7705	48	1686	51	0136	10	5804	122	5821	124	0262	9	50
20	7752	47	1736	50	0146	10	5683	121	5697	124	0252	10	40
30	7800	48	1787	51	0156	10	5561	122	5573	124	0242	10	30
40	7847	47	1837	50	0166	10	5440	121	5449	124	0233	9	20
50	7895	48	1888	51	0176	10	5319	121	5325	124	0223	10	10
25 0	0.197942	47	0.201938	50	1.020186	10	5.05197	122	4.95201	124	0.980214	9	**35** 0
10	7990	48	1989	51	0196	10	5076	121	5078	123	0204	10	50
20	8038	48	2039	50	0206	10	4955	121	4954	124	0194	10	40
30	8085	47	2089	50	0216	10	4834	121	4830	124	0185	9	30
40	8133	48	2140	51	0226	10	4713	121	4707	123	0175	10	20
50	8180	47	2190	50	0236	10	4592	121	4583	124	0166	9	10
26 0	0.198228	48	0.202241	51	1.020246	10	5.04471	121	4.94460	123	0.980156	10	**34** 0
10	8275	47	2291	50	0256	10	4350	121	4337	123	0146	10	50
20	8323	48	2342	51	0266	10	4229	121	4213	124	0137	9	40
30	8370	47	2392	50	0276	10	4108	121	4090	123	0127	10	30
40	8418	48	2443	51	0286	10	3987	121	3967	123	0118	9	20
50	8465	47	2493	50	0296	10	3867	120	3844	123	0108	10	10
27 0	0.198513	48	0.202544	51	1.020306	10	5.03746	121	4.93721	123	0.980098	10	**33** 0
10	8560	47	2594	50	0316	10	3626	120	3598	123	0089	9	50
20	8608	48	2645	51	0326	10	3505	121	3475	123	0079	10	40
30	8655	47	2695	50	0336	10	3385	120	3352	123	0069	10	30
40	8703	48	2746	51	0346	10	3264	121	3229	123	0060	9	20
50	8750	47	2796	50	0356	10	3144	120	3106	123	0050	10	10
28 0	0.198798	48	0.202847	51	1.020366	10	5.03024	120	4.92984	122	0.980041	9	**32** 0
10	8845	47	2897	50	0376	10	2903	121	2861	123	0031	10	50
20	8893	48	2947	50	0386	10	2783	120	2738	123	0021	10	40
30	8940	47	2998	51	0396	10	2663	120	2616	122	0012	9	30
40	8988	48	3048	50	0406	10	2543	120	2493	123	0.980002	10	20
50	9035	47	3099	51	0416	10	2423	120	2371	122	0.979992	10	10
29 0	0.199083	48	0.203149	50	1.020426	10	5.02303	120	4.92249	122	0.979983	9	**31** 0
10	9130	47	3200	51	0436	10	2184	119	2126	123	9973	10	50
20	9178	48	3250	50	0446	10	2064	120	2004	122	9963	10	40
30	9225	47	3301	51	0456	10	1944	120	1882	122	9954	9	30
40	9273	48	3351	50	0466	10	1824	120	1760	122	9944	10	20
50	9320	47	3402	51	0477	11	1705	119	1638	122	9934	10	10
30 0	0.199368	48	0.203452	50	1.020487	10	5.01585	120	4.91516	122	0.979925	9	**30** 0
	cos		cotg		cosec		sec		tang		sin		

11	
1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

117	
1	11.7
2	23.4
3	35.1
4	46.8
5	58.5
6	70.2
7	81.9
8	93.6
9	105.3

119	
1	11.9
2	23.8
3	35.7
4	47.6
5	59.5
6	71.4
7	83.3
8	95.2
9	107.1

121	
1	12.1
2	24.2
3	36.3
4	48.4
5	60.5
6	72.6
7	84.7
8	96.8
9	108.9

123	
1	12.3
2	24.6
3	36.9
4	49.2
5	61.5
6	73.8
7	86.1
8	98.4
9	110.7

125	
1	12.5
2	25.0
3	37.5
4	50.0
5	62.5
6	75.0
7	87.5
8	100.0
9	112.5

11°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.199368		0.203452		1.020487		5.01585		4.91516		0.979925		**30′** 0″
10	9415	47	3503	51	0497	10	1466	119	1394	122	9915	10	50
20	9463	48	3553	50	0507	10	1346	120	1272	122	9905	10	40
30	9510	47	3604	51	0517	10	1227	119	1150	122	9896	9	30
40	9558	48	3654	50	0527	10	1108	119	1028	122	9886	10	20
50	9605	47	3705	51	0537	10	0988	120	0907	121	9876	10	10
31 0	0.199653	48	0.203755	50	1.020547	10	5.00869	119	4.90785	122	0.979867	9	**29** 0
10	9700	47	3806	51	0557	10	0750	119	0663	122	9857	10	50
20	9748	48	3856	50	0567	10	0631	119	0542	121	9847	10	40
30	9795	47	3907	51	0577	10	0512	119	0420	122	9838	9	30
40	9843	48	3957	50	0587	10	0393	119	0299	121	9828	10	20
50	9890	47	4008	51	0597	10	0274	119	0178	121	9818	10	10
32 0	0.199938	48	0.204058	50	1.020608	11	5.00155	119	4.90056	122	0.979809	9	**28** 0
10	0.199985	47	4109	51	0618	10	5.00036	119	4.89935	121	9799	10	50
20	0.200033	48	4159	50	0628	10	4.99918	118	9814	121	9789	10	40
30	0081	48	4210	51	0638	10	9799	119	9693	121	9779	10	30
40	0128	47	4260	50	0648	10	9680	119	9572	121	9770	9	20
50	0176	48	4311	51	0658	10	9562	118	9451	121	9760	10	10
33 0	0.200223	47	0.204361	50	1.020668	10	4.99443	119	4.89330	121	0.979750	10	**27** 0
10	0271	48	4412	51	0678	10	9325	118	9209	121	9741	9	50
20	0318	47	4462	50	0688	10	9206	119	9088	121	9731	10	40
30	0366	48	4513	51	0699	11	9088	118	8967	121	9721	10	30
40	0413	47	4563	50	0709	10	8970	118	8846	121	9712	9	20
50	0460	47	4614	51	0719	10	8851	119	8726	120	9702	10	10
34 0	0.200508	48	0.204664	50	1.020729	10	4.98733	118	4.88605	121	0.979692	10	**26** 0
10	0555	47	4715	51	0739	10	8615	118	8484	121	9682	10	50
20	0603	48	4765	50	0749	10	8497	118	8364	120	9673	9	40
30	0650	47	4816	51	0759	10	8379	118	8243	121	9663	10	30
40	0698	48	4866	50	0769	10	8261	118	8123	120	9653	10	20
50	0745	47	4917	51	0780	11	8143	118	8003	120	9643	10	10
35 0	0.200793	48	0.204967	50	1.020790	10	4.98025	118	4.87882	121	0.979634	9	**25** 0
10	0840	47	5018	51	0800	10	7908	117	7762	120	9624	10	50
20	0888	48	5068	50	0810	10	7790	118	7642	120	9614	10	40
30	0935	47	5119	51	0820	10	7672	118	7522	120	9604	10	30
40	0983	48	5169	50	0830	10	7555	117	7402	120	9595	9	20
50	1030	47	5220	51	0840	10	7437	118	7282	120	9585	10	10
36 0	0.201078	48	0.205271	51	1.020851	11	4.97320	117	4.87162	120	0.979575	10	**24** 0
10	1125	47	5321	50	0861	10	7202	118	7042	120	9565	10	50
20	1173	48	5372	51	0871	10	7085	117	6922	120	9556	9	40
30	1220	47	5422	50	0881	10	6968	117	6803	119	9546	10	30
40	1268	48	5473	51	0891	10	6850	118	6683	120	9536	10	20
50	1315	47	5523	50	0901	10	6733	117	6563	120	9526	10	10
37 0	0.201363	48	0.205574	51	1.020912	11	4.96616	117	4.86444	119	0.979517	9	**23** 0
10	1410	47	5624	50	0922	10	6499	117	6324	120	9507	10	50
20	1458	48	5675	51	0932	10	6382	117	6205	119	9497	10	40
30	1505	47	5725	50	0942	10	6265	117	6085	120	9487	10	30
40	1553	48	5776	51	0952	10	6148	117	5966	119	9478	9	20
50	1600	47	5826	50	0963	11	6031	117	5846	120	9468	10	10
38 0	0.201648	48	0.205877	51	1.020973	10	4.95914	117	4.85727	119	0.979458	10	**22** 0
10	1695	47	5927	50	0983	10	5797	117	5608	119	9448	10	50
20	1743	48	5978	51	0993	10	5681	116	5489	119	9439	9	40
30	1790	47	6028	50	1003	10	5564	117	5370	119	9429	10	30
40	1838	48	6079	51	1014	11	5448	116	5251	119	9419	10	20
50	1885	47	6130	51	1024	10	5331	117	5132	119	9409	10	10
39 0	0.201933	48	0.206180	50	1.021034	10	4.95215	116	4.85013	119	0.979399	10	**21** 0
10	1980	47	6231	51	1044	10	5098	117	4894	119	9390	9	50
20	2028	48	6281	50	1054	10	4982	116	4775	119	9380	10	40
30	2075	47	6332	51	1065	11	4865	117	4656	119	9370	10	30
40	2123	48	6382	50	1075	10	4749	116	4538	118	9360	10	20
50	2170	47	6433	51	1085	10	4633	116	4419	119	9350	10	10
40 0	0.202218	48	0.206483	50	1.021095	10	4.94517	116	4.84300	119	0.979341	9	**20** 0
	cos		cotg		cosec		sec		tang		sin		

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

116	
1	11.6
2	23.2
3	34.8
4	46.4
5	58.0
6	69.6
7	81.2
8	92.8
9	104.4

118	
1	11.8
2	23.6
3	35.4
4	47.2
5	59.0
6	70.8
7	82.6
8	94.4
9	106.2

120	
1	12.0
2	24.0
3	36.0
4	48.0
5	60.0
6	72.0
7	84.0
8	96.0
9	108.0

122	
1	12.2
2	24.4
3	36.6
4	48.8
5	61.0
6	73.2
7	85.4
8	97.6
9	109.8

124	
1	12.4
2	24.8
3	37.2
4	49.6
5	62.0
6	74.4
7	86.8
8	99.2
9	111.6

126	
1	12.6
2	25.2
3	37.8
4	50.4
5	63.0
6	75.6
7	88.2
8	100.8
9	113.4

78°

11°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.202218		0.206483		1.021095		4.94517		4.84300		0.979341		**20′** 0″
10	2265	47	6534	51	1105	10	4401	116	4182	118	9331	10	50
20	2313	48	6584	50	1116	11	4285	116	4063	119	9321	10	40
30	2360	47	6635	51	1126	10	4169	116	3945	118	9311	10	30
40	2407	47	6686	51	1136	10	4053	116	3827	118	9301	10	20
50	2455	48	6736	50	1146	10	3937	116	3708	119	9292	9	10
41 0	0.202502	47	0.206787	51	1.021157	11	4.93821	116	4.83590	118	0.979282	10	**19** 0
10	2550	48	6837	50	1167	10	3705	116	3472	118	9272	10	50
20	2597	47	6888	51	1177	10	3590	115	3354	118	9262	10	40
30	2645	48	6938	50	1187	10	3474	116	3236	118	9252	10	30
40	2692	47	6989	51	1198	11	3359	115	3118	118	9242	10	20
50	2740	48	7039	50	1208	10	3243	116	3000	118	9233	9	10
42 0	0.202787	47	0.207090	51	1.021218	10	4.93128	115	4.82882	118	0.979223	10	**18** 0
10	2835	48	7141	51	1228	10	3012	116	2764	118	9213	10	50
20	2882	47	7191	50	1239	11	2897	115	2646	118	9203	10	40
30	2930	48	7242	51	1249	10	2781	116	2528	118	9193	10	30
40	2977	47	7292	50	1259	10	2666	115	2411	117	9183	10	20
50	3025	48	7343	51	1269	10	2551	115	2293	118	9174	9	10
43 0	0.203072	47	0.207393	50	1.021280	11	4.92436	115	4.82175	118	0.979164	10	**17** 0
10	3120	48	7444	51	1290	10	2321	115	2058	117	9154	10	50
20	3167	47	7495	51	1300	10	2206	115	1940	118	9144	10	40
30	3215	48	7545	50	1310	10	2091	115	1823	117	9134	10	30
40	3262	47	7596	51	1321	11	1976	115	1706	117	9124	10	20
50	3309	47	7646	50	1331	10	1861	115	1588	118	9115	9	10
44 0	0.203357	48	0.207697	51	1.021341	10	4.91746	115	4.81471	117	0.979105	10	**16** 0
10	3404	47	7747	50	1352	11	1631	115	1354	117	9095	10	50
20	3452	48	7798	51	1362	10	1517	114	1237	117	9085	10	40
30	3499	47	7849	51	1372	10	1402	115	1120	117	9075	10	30
40	3547	48	7899	50	1382	10	1287	115	1002	118	9065	10	20
50	3594	47	7950	51	1393	11	1173	114	0885	117	9055	10	10
45 0	0.203642	48	0.208000	50	1.021403	10	4.91058	115	4.80769	116	0.979045	10	**15** 0
10	3689	47	8051	51	1413	10	0944	114	0652	117	9036	9	50
20	3737	48	8101	50	1424	11	0830	114	0535	117	9026	10	40
30	3784	47	8152	51	1434	10	0715	115	0418	117	9016	10	30
40	3832	48	8203	51	1444	10	0601	114	0301	117	9006	10	20
50	3879	47	8253	50	1455	11	0487	114	0185	116	8996	10	10
46 0	0.203927	48	0.208304	51	1.021465	10	4.90373	114	4.80068	117	0.978986	10	**14** 0
10	3974	47	8354	50	1475	10	0259	114	4.79952	116	8976	10	50
20	4021	47	8405	51	1486	11	0145	114	9835	117	8966	10	40
30	4069	48	8456	51	1496	10	4.90031	114	9719	116	8957	9	30
40	4116	47	8506	50	1506	10	4.89917	114	9602	117	8947	10	20
50	4164	48	8557	51	1516	10	9803	114	9486	116	8937	10	10
47 0	0.204211	47	0.208607	50	1.021527	11	4.89689	114	4.79370	116	0.978927	10	**13** 0
10	4259	48	8658	51	1537	10	9575	114	9253	117	8917	10	50
20	4306	47	8709	51	1547	10	9461	114	9137	116	8907	10	40
30	4354	48	8759	50	1558	11	9348	113	9021	116	8897	10	30
40	4401	47	8810	51	1568	10	9234	114	8905	116	8887	10	20
50	4449	48	8860	50	1578	10	9121	113	8789	116	8877	10	10
48 0	0.204496	47	0.208911	51	1.021589	11	4.89007	114	4.78673	116	0.978867	10	**12** 0
10	4544	48	8961	50	1599	10	8894	113	8557	116	8857	10	50
20	4591	47	9012	51	1610	11	8780	114	8441	116	8848	9	40
30	4638	47	9063	51	1620	10	8667	113	8325	116	8838	10	30
40	4686	48	9113	50	1630	10	8553	114	8210	115	8828	10	20
50	4733	47	9164	51	1641	11	8440	113	8094	116	8818	10	10
49 0	0.204781	48	0.209214	50	1.021651	10	4.88327	113	4.77978	116	0.978808	10	**11** 0
10	4828	47	9265	51	1661	10	8214	113	7863	115	8798	10	50
20	4876	48	9316	51	1672	11	8101	113	7747	116	8788	10	40
30	4923	47	9366	50	1682	10	7988	113	7632	115	8778	10	30
40	4971	48	9417	51	1692	10	7875	113	7516	116	8768	10	20
50	5018	47	9468	51	1703	11	7762	113	7401	115	8758	10	10
50 0	0.205065	47	0.209518	50	1.021713	10	4.87649	113	4.77286	115	0.978748	10	**10** 0
	cos		cotg		cosec		sec		tang		sin		

11

1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

51

1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

111

1	11.1
2	22.2
3	33.3
4	44.4
5	55.5
6	66.6
7	77.7
8	88.8
9	99.9

113

1	11.3
2	22.6
3	33.9
4	45.2
5	56.5
6	67.8
7	79.1
8	90.4
9	101.7

115

1	11.5
2	23.0
3	34.5
4	46.0
5	57.5
6	69.0
7	80.5
8	92.0
9	103.5

116

1	11.6
2	23.2
3	34.8
4	46.4
5	58.0
6	69.6
7	81.2
8	92.8
9	104.4

118

1	11.8
2	23.6
3	35.4
4	47.2
5	59.0
6	70.8
7	82.6
8	94.4
9	106.2

78°

11°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.205065		0.209518		1.021713		4.87649		4.77286		0.978748		**10′** 0″
10	5113	48	9569	51	1724	11	7536	113	7170	116	8738	10	50
20	5160	47	9619	50	1734	10	7423	113	7055	115	8728	10	40
30	5208	48	9670	51	1744	10	7311	112	6940	115	8718	10	30
40	5255	47	9721	51	1755	11	7198	113	6825	115	8708	10	20
50	5303	48	9771	50	1765	10	7086	112	6710	115	8699	9	10
51 0	0.205350	47	0.209822	51	1.021776	11	4.86973	113	4.76595	115	0.978689	10	**9** 0
10	5398	48	9872	50	1786	10	6860	113	6480	115	8679	10	50
20	5445	47	9923	51	1796	10	6748	112	6365	115	8669	10	40
30	5493	48	0.209974	51	1807	11	6636	112	6250	115	8659	10	30
40	5540	47	0.210024	50	1817	10	6523	113	6135	115	8649	10	20
50	5587	47	0075	51	1828	11	6411	112	6021	114	8639	10	10
52 0	0.205635	48	0.210126	51	1.021838	10	4.86299	112	4.75906	115	0.978629	10	**8** 0
10	5682	47	0176	50	1848	10	6187	112	5791	115	8619	10	50
20	5730	48	0227	51	1859	11	6075	112	5677	114	8609	10	40
30	5777	47	0277	50	1869	10	5962	113	5562	115	8599	10	30
40	5825	48	0328	51	1880	11	5850	112	5448	114	8589	10	20
50	5872	47	0379	51	1890	10	5738	112	5333	115	8579	10	10
53 0	0.205920	48	0.210429	50	1.021900	10	4.85627	111	4.75219	114	0.978569	10	**7** 0
10	5967	47	0480	51	1911	11	5515	112	5105	114	8559	10	50
20	6014	47	0531	51	1921	10	5403	112	4991	114	8549	10	40
30	6062	48	0581	50	1932	11	5291	112	4876	115	8539	10	30
40	6109	47	0632	51	1942	10	5179	112	4762	114	8529	10	20
50	6157	48	0682	50	1953	11	5068	111	4648	114	8519	10	10
54 0	0.206204	47	0.210733	51	1.021963	10	4.84956	112	4.74534	114	0.978509	10	**6** 0
10	6252	48	0784	51	1973	10	4845	111	4420	114	8499	10	50
20	6299	47	0834	50	1984	11	4733	112	4306	114	8489	10	40
30	6347	48	0885	51	1994	10	4622	111	4192	114	8479	10	30
40	6394	47	0936	51	2005	11	4510	112	4078	114	8469	10	20
50	6441	47	0986	50	2015	10	4399	111	3965	113	8459	10	10
55 0	0.206489	48	0.211037	51	1.022026	11	4.84288	111	4.73851	114	0.978449	10	**5** 0
10	6536	47	1088	51	2036	10	4177	111	3737	114	8439	10	50
20	6584	48	1138	50	2047	11	4065	112	3624	113	8429	10	40
30	6631	47	1189	51	2057	10	3954	111	3510	114	8419	10	30
40	6679	48	1239	50	2068	11	3843	111	3396	114	8409	10	20
50	6726	47	1290	51	2078	10	3732	111	3283	113	8399	10	10
56 0	0.206773	47	0.211341	51	1.022089	11	4.83621	111	4.73170	113	0.978389	10	**4** 0
10	6821	48	1391	50	2099	10	3510	111	3056	114	8379	10	50
20	6868	47	1442	51	2109	10	3399	111	2943	113	8369	10	40
30	6916	48	1493	51	2120	11	3289	110	2830	113	8359	10	30
40	6963	47	1543	50	2130	10	3178	111	2716	114	8349	10	20
50	7011	48	1594	51	2141	11	3067	111	2603	113	8339	10	10
57 0	0.207058	47	0.211645	51	1.022151	10	4.82956	111	4.72490	113	0.978329	10	**3** 0
10	7105	47	1695	50	2162	11	2846	110	2377	113	8319	10	50
20	7153	48	1746	51	2172	10	2735	111	2264	113	8309	10	40
30	7200	47	1797	51	2183	11	2625	110	2151	113	8299	10	30
40	7248	48	1847	50	2193	10	2514	111	2038	113	8288	11	20
50	7295	47	1898	51	2204	11	2404	110	1925	113	8278	10	10
58 0	0.207343	48	0.211949	51	1.022214	10	4.82294	110	4.71813	112	0.978268	10	**2** 0
10	7390	47	1999	50	2225	11	2183	111	1700	113	8258	10	50
20	7437	47	2050	51	2235	10	2073	110	1587	113	8248	10	40
30	7485	48	2101	51	2246	11	1963	110	1474	113	8238	10	30
40	7532	47	2151	50	2256	10	1853	110	1362	112	8228	10	20
50	7580	48	2202	51	2267	11	1743	110	1249	113	8218	10	10
59 0	0.207627	47	0.212253	51	1.022277	10	4.81633	110	4.71137	112	0.978208	10	**1** 0
10	7675	48	2303	50	2288	11	1523	110	1024	113	8198	10	50
20	7722	47	2354	51	2298	10	1413	110	0912	112	8188	10	40
30	7769	47	2405	51	2309	11	1303	110	0800	112	8178	10	30
40	7817	48	2455	50	2320	11	1193	110	0687	113	8168	10	20
50	7864	47	2506	51	2330	10	1083	110	0575	112	8158	10	10
60 0	0.207912	48	0.212557	51	1.022341	11	4.80973	110	4.70463	112	0.978148	10	**0** 0
	cos		cotg		cosec		sec		tang		sin		

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

110	
1	11.0
2	22.0
3	33.0
4	44.0
5	55.0
6	66.0
7	77.0
8	88.0
9	99.0

112	
1	11.2
2	22.4
3	33.6
4	44.8
5	56.0
6	67.2
7	78.4
8	89.6
9	100.8

114	
1	11.4
2	22.8
3	34.2
4	45.6
5	57.0
6	68.4
7	79.8
8	91.2
9	102.6

115	
1	11.5
2	23.0
3	34.5
4	46.0
5	57.5
6	69.0
7	80.5
8	92.0
9	103.5

117	
1	11.7
2	23.4
3	35.1
4	46.8
5	58.5
6	70.2
7	81.9
8	93.6
9	105.3

119	
1	11.9
2	23.8
3	35.7
4	47.6
5	59.5
6	71.4
7	83.3
8	95.2
9	107.1

78°

12°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.207912		0.212557		1.022341		4.80973		4.70463		0.978148		**60′** 0″
10	7959	47	2607	50	2351	10	0864	109	0351	112	8138	10	50
20	8007	48	2658	51	2362	11	0754	110	0239	112	8127	11	40
30	8054	47	2709	51	2372	10	0645	109	0127	112	8117	10	30
40	8101	47	2759	50	2383	11	0535	110	4.70015	112	8107	10	20
50	8149	48	2810	51	2393	10	0426	109	4.69903	112	8097	10	10
1 0	0.208196	47	0.212861	51	1.022404	11	4.80316	110	4.69791	112	0.978087	10	**59** 0
10	8244	48	2911	50	2414	10	0207	109	9679	112	8077	10	50
20	8291	47	2962	51	2425	11	4.80097	110	9567	112	8067	10	40
30	8338	47	3013	51	2436	11	4.79988	109	9456	111	8057	10	30
40	8386	48	3063	50	2446	10	9879	109	9344	112	8047	10	20
50	8433	47	3114	51	2457	11	9770	109	9232	112	8037	10	10
2 0	0.208481	48	0.213165	51	1.022467	10	4.79661	109	4.69121	111	0.978026	11	**58** 0
10	8528	47	3215	50	2478	11	9552	109	9009	112	8016	10	50
20	8576	48	3266	51	2488	10	9443	109	8898	111	8006	10	40
30	8623	47	3317	51	2499	11	9334	109	8786	112	7996	10	30
40	8670	47	3367	50	2509	10	9225	109	8675	111	7986	10	20
50	8718	48	3418	51	2520	11	9116	109	8564	111	7976	10	10
3 0	0.208765	47	0.213469	51	1.022531	11	4.79007	109	4.68452	112	0.977966	10	**57** 0
10	8813	48	3520	51	2541	10	8898	109	8341	111	7956	10	50
20	8860	47	3570	50	2552	11	8790	108	8230	111	7946	11	40
30	8907	47	3621	51	2562	10	8681	109	8119	111	7935	10	30
40	8955	48	3672	51	2573	11	8572	109	8008	111	7925	10	20
50	9002	47	3722	50	2584	11	8464	108	7897	111	7915	10	10
4 0	0.209050	48	0.213773	51	1.022594	10	4.78355	109	4.67786	111	0.977905	10	**56** 0
10	9097	47	3824	51	2605	11	8247	108	7675	111	7895	10	50
20	9144	47	3874	50	2615	10	8138	109	7564	111	7885	10	40
30	9192	48	3925	51	2626	11	8030	108	7453	111	7875	10	30
40	9239	47	3976	51	2637	11	7922	108	7343	110	7864	11	20
50	9287	48	4026	50	2647	10	7813	109	7232	111	7854	10	10
5 0	0.209334	47	0.214077	51	1.022658	11	4.77705	108	4.67121	111	0.977844	10	**55** 0
10	9382	48	4128	51	2668	10	7597	108	7011	110	7834	10	50
20	9429	47	4179	51	2679	11	7489	108	6900	111	7824	10	40
30	9476	47	4229	50	2690	11	7381	108	6790	110	7814	10	30
40	9524	48	4280	51	2700	10	7273	108	6679	111	7804	10	20
50	9571	47	4331	51	2711	11	7165	108	6569	110	7793	11	10
6 0	0.209619	48	0.214381	50	1.022722	11	4.77057	108	4.66458	111	0.977783	10	**54** 0
10	9666	47	4432	51	2732	10	6949	108	6348	110	7773	10	50
20	9713	47	4483	51	2743	11	6841	108	6238	110	7763	10	40
30	9761	48	4534	51	2753	10	6734	107	6128	110	7753	10	30
40	9808	47	4584	50	2764	11	6626	108	6017	111	7743	10	20
50	9856	48	4635	51	2775	11	6518	108	5907	110	7732	11	10
7 0	0.209903	47	0.214686	51	1.022785	10	4.76411	107	4.65797	110	0.977722	10	**53** 0
10	9950	47	4736	50	2796	11	6303	108	5687	110	7712	10	50
20	0.209998	48	4787	51	2807	11	6196	107	5577	110	7702	10	40
30	0.210045	47	4838	51	2817	10	6088	108	5467	110	7692	10	30
40	0093	48	4889	51	2828	11	5981	107	5357	110	7681	11	20
50	0140	47	4939	50	2839	11	5873	108	5248	109	7671	10	10
8 0	0.210187	47	0.214990	51	1.022849	10	4.75766	107	4.65138	110	0.977661	10	**52** 0
10	0235	48	5041	51	2860	11	5659	107	5028	110	7651	10	50
20	0282	47	5091	50	2871	11	5551	108	4919	109	7641	10	40
30	0330	48	5142	51	2881	10	5444	107	4809	110	7631	10	30
40	0377	47	5193	51	2892	11	5337	107	4699	110	7620	11	20
50	0424	47	5244	51	2903	11	5230	107	4590	109	7610	10	10
9 0	0.210472	48	0.215294	50	1.022913	10	4.75123	107	4.64480	110	0.977600	10	**51** 0
10	0519	47	5345	51	2924	11	5016	107	4371	109	7590	10	50
20	0567	48	5396	51	2935	11	4909	107	4262	109	7580	10	40
30	0614	47	5447	51	2945	10	4802	107	4152	110	7569	11	30
40	0661	47	5497	50	2956	11	4696	106	4043	109	7559	10	20
50	0709	48	5548	51	2967	11	4589	107	3934	109	7549	10	10
10 0	0.210756	47	0.215599	51	1.022977	10	4.74482	107	4.63825	109	0.977539	10	**50** 0
	cos		cotg		cosec		sec		tang		sin		

11	
1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

105	
1	10.5
2	21.0
3	31.5
4	42.0
5	52.5
6	63.0
7	73.5
8	84.0
9	94.5

107	
1	10.7
2	21.4
3	32.1
4	42.8
5	53.5
6	64.2
7	74.9
8	85.6
9	96.3

109	
1	10.9
2	21.8
3	32.7
4	43.6
5	54.5
6	65.4
7	76.3
8	87.2
9	98.1

111	
1	11.1
2	22.2
3	33.3
4	44.4
5	55.5
6	66.6
7	77.7
8	88.8
9	99.9

77°

12°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.210756		0.215599		1.022977		4.74482		4.63825		0.977539		**50′** 0″
10	0804	48	5649	50	2988	11	4375	107	3715	110	7528	11	50
20	0851	47	5700	51	2999	11	4269	106	3606	109	7518	10	40
30	0898	47	5751	51	3010	11	4162	107	3497	109	7508	10	30
40	0946	48	5802	51	3020	10	4056	106	3388	109	7498	10	20
50	0993	47	5852	50	3031	11	3949	107	3279	109	7488	10	10
11 0	0.211040	47	0.215903	51	1.023042	11	4.73843	106	4.63171	108	0.977477	11	**49** 0
10	1088	48	5954	51	3052	10	3736	107	3062	109	7467	10	50
20	1135	47	6005	51	3063	11	3630	106	2953	109	7457	10	40
30	1183	48	6055	50	3074	11	3524	106	2844	109	7447	10	30
40	1230	47	6106	51	3084	10	3418	106	2736	108	7436	11	20
50	1277	47	6157	51	3095	11	3311	107	2627	109	7426	10	10
12 0	0.211325	48	0.216208	51	1.023106	11	4.73205	106	4.62518	109	0.977416	10	**48** 0
10	1372	47	6258	50	3117	11	3099	106	2410	108	7406	10	50
20	1420	48	6309	51	3127	10	2993	106	2301	109	7395	11	40
30	1467	47	6360	51	3138	11	2887	106	2193	108	7385	10	30
40	1514	47	6411	51	3149	11	2781	106	2084	109	7375	10	20
50	1562	48	6461	50	3160	11	2675	106	1976	108	7365	10	10
13 0	0.211609	47	0.216512	51	1.023170	10	4.72569	106	4.61868	108	0.977354	11	**47** 0
10	1656	47	6563	51	3181	11	2464	105	1760	108	7344	10	50
20	1704	48	6614	51	3192	11	2358	106	1651	109	7334	10	40
30	1751	47	6664	50	3203	11	2252	106	1543	108	7324	10	30
40	1799	48	6715	51	3213	10	2147	105	1435	108	7313	11	20
50	1846	47	6766	51	3224	11	2041	106	1327	108	7303	10	10
14 0	0.211893	47	0.216817	51	1.023235	11	4.71935	106	4.61219	108	0.977293	10	**46** 0
10	1941	48	6867	50	3246	11	1830	105	1111	108	7283	10	50
20	1988	47	6918	51	3256	10	1724	106	1003	108	7272	11	40
30	2036	48	6969	51	3267	11	1619	105	0895	108	7262	10	30
40	2083	47	7020	51	3278	11	1514	105	0788	107	7252	10	20
50	2130	47	7071	51	3289	11	1408	106	0680	108	7241	11	10
15 0	0.212178	48	0.217121	50	1.023299	10	4.71303	105	4.60572	108	0.977231	10	**45** 0
10	2225	47	7172	51	3310	11	1198	105	0464	108	7221	10	50
20	2272	47	7223	51	3321	11	1093	105	0357	107	7211	10	40
30	2320	48	7274	51	3332	11	0988	105	0249	108	7200	11	30
40	2367	47	7324	50	3343	11	0883	105	0142	107	7190	10	20
50	2415	48	7375	51	3353	10	0778	105	4.60034	108	7180	10	10
16 0	0.212462	47	0.217426	51	1.023364	11	4.70673	105	4.59927	107	0.977169	11	**44** 0
10	2509	47	7477	51	3375	11	0568	105	9819	108	7159	10	50
20	2557	48	7527	50	3386	11	0463	105	9712	107	7149	10	40
30	2604	47	7578	51	3396	10	0358	105	9605	107	7138	11	30
40	2651	47	7629	51	3407	11	0253	105	9498	107	7128	10	20
50	2699	48	7680	51	3418	11	0148	105	9390	108	7118	10	10
17 0	0.212746	47	0.217731	51	1.023429	11	4.70044	104	4.59283	107	0.977108	10	**43** 0
10	2794	48	7781	50	3440	11	4.69939	105	9176	107	7097	11	50
20	2841	47	7832	51	3450	10	9834	105	9069	107	7087	10	40
30	2888	47	7883	51	3461	11	9730	104	8962	107	7077	10	30
40	2936	48	7934	51	3472	11	9625	105	8855	107	7066	11	20
50	2983	47	7984	50	3483	11	9521	104	8748	107	7056	10	10
18 0	0.213030	47	0.218035	51	1.023494	11	4.69417	104	4.58641	107	0.977046	10	**42** 0
10	3078	48	8086	51	3505	11	9312	105	8535	106	7035	11	50
20	3125	47	8137	51	3515	10	9208	104	8428	107	7025	10	40
30	3172	47	8188	51	3526	11	9104	104	8321	107	7015	10	30
40	3220	48	8238	50	3537	11	8999	105	8214	107	7004	11	20
50	3267	47	8289	51	3548	11	8895	104	8108	106	6994	10	10
19 0	0.213315	48	0.218340	51	1.023559	11	4.68791	104	4.58001	107	0.976984	10	**41** 0
10	3362	47	8391	51	3570	11	8687	104	7895	106	6973	11	50
20	3409	47	8442	51	3580	10	8583	104	7788	107	6963	10	40
30	3457	48	8492	50	3591	11	8479	104	7682	106	6953	10	30
40	3504	47	8543	51	3602	11	8375	104	7575	107	6942	11	20
50	3551	47	8594	51	3613	11	8271	104	7469	106	6932	10	10
20 0	0.213599	48	0.218645	51	1.023624	11	4.68167	104	4.57363	106	0.976921	11	**40** 0
	cos		cotg		cosec		sec		tang		sin		

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

104	
1	10.4
2	20.8
3	31.2
4	41.6
5	52.0
6	62.4
7	72.8
8	83.2
9	93.6

106	
1	10.6
2	21.2
3	31.8
4	42.4
5	53.0
6	63.6
7	74.2
8	84.8
9	95.4

108	
1	10.8
2	21.6
3	32.4
4	43.2
5	54.0
6	64.8
7	75.6
8	86.4
9	97.2

110	
1	11.0
2	22.0
3	33.0
4	44.0
5	55.0
6	66.0
7	77.0
8	88.0
9	99.0

112	
1	11.2
2	22.4
3	33.6
4	44.8
5	56.0
6	67.2
7	78.4
8	89.6
9	100.8

77°

12°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.213599		0.218645		1.023624		4.68167		4·57363		0.976921		**40′** 0″
10	3646	47	8696	51	3635	11	8064	103	7257	106	6911	10	50
20	3693	47	8746	50	3645	10	7960	104	7150	107	6901	10	40
30	3741	48	8797	51	3656	11	7856	104	7044	106	6890	11	30
40	3788	47	8848	51	3667	11	7753	103	6938	106	6880	10	20
50	3836	48	8899	51	3678	11	7649	104	6832	106	6870	10	10
21 0	0.213883	47	0.218950	51	1.023689	11	4.67545	104	4.56726	106	0.976859	11	**39** 0
10	3930	47	9000	50	3700	11	7442	103	6620	106	6849	10	50
20	3978	48	9051	51	3711	11	7339	103	6514	106	6839	10	40
30	4025	47	9102	51	3721	10	7235	104	6408	106	6828	11	30
40	4072	47	9153	51	3732	11	7132	103	6303	105	6818	10	20
50	4120	48	9204	51	3743	11	7028	104	6197	106	6807	11	10
22 0	0.214167	47	0.219254	50	1.023754	11	4.66925	103	4.56091	106	0.976797	10	**38** 0
10	4214	47	9305	51	3765	11	6822	103	5985	106	6787	10	50
20	4262	48	9356	51	3776	11	6719	103	5880	105	6776	11	40
30	4309	47	9407	51	3787	11	6616	103	5774	106	6766	10	30
40	4357	48	9458	51	3798	11	6513	103	5669	105	6755	11	20
50	4404	47	9509	51	3809	11	6410	103	5563	106	6745	10	10
23 0	0.214451	47	0.219559	50	1.023819	10	4.66307	103	4.55458	105	0.976735	10	**37** 0
10	4499	48	9610	51	3830	11	6204	103	5352	106	6724	11	50
20	4546	47	9661	51	3841	11	6101	103	5247	105	6714	10	40
30	4593	47	9712	51	3852	11	5998	103	5142	105	6703	11	30
40	4641	48	9763	51	3863	11	5895	103	5036	106	6693	10	20
50	4688	47	9813	50	3874	11	5792	103	4931	105	6683	10	10
24 0	0.214735	47	0.219864	51	1.023885	11	4.65690	102	4.54826	105	0.976672	11	**36** 0
10	4783	48	9915	51	3896	11	5587	103	4721	105	6662	10	50
20	4830	47	0.219966	51	3907	11	5484	103	4616	105	6651	11	40
30	4877	47	0.220017	51	3918	11	5382	102	4511	105	6641	10	30
40	4925	48	0068	51	3929	11	5279	103	4406	105	6631	10	20
50	4972	47	0118	50	3940	11	5177	102	4301	105	6620	11	10
25 0	0.215019	47	0.220169	51	1.023950	10	4.65074	103	4.54196	105	0.976610	10	**35** 0
10	5067	48	0220	51	3961	11	4972	102	4091	105	6599	11	50
20	5114	47	0271	51	3972	11	4870	102	3986	105	6589	10	40
30	5161	47	0322	51	3983	11	4767	103	3882	104	6578	11	30
40	5209	48	0373	51	3994	11	4665	102	3777	105	6568	10	20
50	5256	47	0423	50	4005	11	4563	102	3672	105	6558	10	10
26 0	0.215303	47	0.220474	51	1.024016	11	4.64461	102	4.53568	104	0.976547	11	**34** 0
10	5351	48	0525	51	4027	11	4359	102	3463	105	6537	10	50
20	5398	47	0576	51	4038	11	4256	103	3359	104	6526	11	40
30	5446	48	0627	51	4049	11	4154	102	3254	105	6516	10	30
40	5493	47	0678	51	4060	11	4052	102	3150	104	6505	11	20
50	5540	47	0728	50	4071	11	3951	101	3045	105	6495	10	10
27 0	0.215588	48	0.220779	51	1.024082	11	4.63849	102	4.52941	104	0.976485	10	**33** 0
10	5635	47	0830	51	4093	11	3747	102	2837	104	6474	11	50
20	5682	47	0881	51	4104	11	3645	102	2733	104	6464	10	40
30	5730	48	0932	51	4115	11	3543	102	2628	105	6453	11	30
40	5777	47	0983	51	4126	11	3442	101	2524	104	6443	10	20
50	5824	47	1034	51	4137	11	3340	102	2420	104	6432	11	10
28 0	0.215872	48	0.221084	50	1.024148	11	4.63238	102	4.52316	104	0.976422	10	**32** 0
10	5919	47	1135	51	4159	11	3137	101	2212	104	6411	11	50
20	5966	47	1186	51	4170	11	3035	102	2108	104	6401	10	40
30	6014	48	1237	51	4181	11	2934	101	2004	104	6390	11	30
40	6061	47	1288	51	4192	11	2832	102	1900	104	6380	10	20
50	6108	47	1339	51	4203	11	2731	101	1796	104	6369	11	10
29 0	0.216156	48	0.221389	50	1.024214	11	4.62630	101	4.51693	103	0.976359	10	**31** 0
10	6203	47	1440	51	4225	11	2528	102	1589	104	6348	11	50
20	6250	47	1491	51	4235	10	2427	101	1485	104	6338	10	40
30	6298	48	1542	51	4246	11	2326	101	1382	103	6327	11	30
40	6345	47	1593	51	4258	12	2225	101	1278	104	6317	10	20
50	6392	47	1644	51	4269	11	2124	101	1174	104	6306	11	10
30 0	0.216440	48	0.221695	51	1.024280	11	4.62023	101	4.51071	103	0.976296	10	**30** 0
	cos		cotg		cosec		sec		tang		sin		

11

1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

98

1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2

100

1	10.0
2	20.0
3	30.0
4	40.0
5	50.0
6	60.0
7	70.0
8	80.0
9	90.0

102

1	10.2
2	20.4
3	30.6
4	40.8
5	51.0
6	61.2
7	71.4
8	81.6
9	91.8

104

1	10.4
2	20.8
3	31.2
4	41.6
5	52.0
6	62.4
7	72.8
8	83.2
9	93.6

106

1	10.6
2	21.2
3	31.8
4	42.4
5	53.0
6	63.6
7	74.2
8	84.8
9	95.4

77°

12°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.216440		0.221695		1.024280		4.62023		4.51071		0.976296		**30′** 0″
10	6487	47	1746	51	4291	11	1922	101	0967	104	6286	10	50
20	6534	47	1796	50	4302	11	1821	101	0864	103	6275	11	40
30	6582	48	1847	51	4313	11	1720	101	0761	103	6265	10	30
40	6629	47	1898	51	4324	11	1619	101	0657	104	6254	11	20
50	6676	47	1949	51	4335	11	1518	101	0554	103	6244	10	10
31 0	0.216724	48	0.222000	51	1.024346	11	4.61417	101	4.50451	103	0.976233	11	**29** 0
10	6771	47	2051	51	4357	11	1316	101	0348	103	6222	11	50
20	6818	47	2102	51	4368	11	1216	100	0244	104	6212	10	40
30	6866	48	2152	50	4379	11	1115	101	0141	103	6201	11	30
40	6913	47	2203	51	4390	11	1015	100	4.50038	103	6191	10	20
50	6960	47	2254	51	4401	11	0914	101	4.49935	103	6180	11	10
32 0	0.217008	48	0.222305	51	1.024412	11	4.60813	101	4.49832	103	0.976170	10	**28** 0
10	7055	47	2356	51	4423	11	0713	100	9729	103	6159	11	50
20	7102	47	2407	51	4434	11	0613	100	9626	103	6149	10	40
30	7150	48	2458	51	4445	11	0512	101	9524	102	6138	11	30
40	7197	47	2509	51	4456	11	0412	100	9421	103	6128	10	20
50	7244	47	2560	51	4467	11	0312	100	9318	103	6117	11	10
33 0	0.217292	48	0.222610	50	1.024478	11	4.60211	101	4.49215	103	0.976107	10	**27** 0
10	7339	47	2661	51	4489	11	0111	100	9113	102	6096	11	50
20	7386	47	2712	51	4500	11	4.60011	100	9010	103	6086	10	40
30	7433	47	2763	51	4511	11	4.59911	100	8907	103	6075	11	30
40	7481	48	2814	51	4522	11	9811	100	8805	102	6065	10	20
50	7528	47	2865	51	4533	11	9711	100	8702	103	6054	11	10
34 0	0.217575	47	0.222916	51	1.024544	11	4.59611	100	4.48600	102	0.976044	10	**26** 0
10	7623	48	2967	51	4556	12	9511	100	8498	102	6033	11	50
20	7670	47	3018	51	4567	11	9411	100	8395	103	6022	11	40
30	7717	47	3068	50	4578	11	9311	100	8293	102	6012	10	30
40	7765	48	3119	51	4589	11	9211	100	8191	102	6001	11	20
50	7812	47	3170	51	4600	11	9111	100	8089	102	5991	10	10
35 0	0.217859	47	0.223221	51	1.024611	11	4.59012	99	4.47986	103	0.975980	11	**25** 0
10	7907	48	3272	51	4622	11	8912	100	7884	102	5970	10	50
20	7954	47	3323	51	4633	11	8812	100	7782	102	5959	11	40
30	8001	47	3374	51	4644	11	8713	99	7680	102	5948	11	30
40	8049	48	3425	51	4655	11	8613	100	7578	102	5938	10	20
50	8096	47	3476	51	4666	11	8514	99	7476	102	5927	11	10
36 0	0.218143	47	0.223526	50	1.024678	12	4.58414	100	4.47374	102	0.975917	10	**24** 0
10	8191	48	3577	51	4689	11	8315	99	7272	102	5906	11	50
20	8238	47	3628	51	4700	11	8216	99	7171	101	5896	10	40
30	8285	47	3679	51	4711	11	8116	100	7069	102	5885	11	30
40	8332	47	3730	51	4722	11	8017	99	6967	102	5874	11	20
50	8380	48	3781	51	4733	11	7918	99	6865	102	5864	10	10
37 0	0.218427	47	0.223832	51	1.024744	11	4.57819	99	4.46764	101	0.975853	11	**23** 0
10	8474	47	3883	51	4755	11	7719	100	6662	102	5843	10	50
20	8522	48	3934	51	4766	11	7620	99	6561	101	5832	11	40
30	8569	47	3985	51	4778	12	7521	99	6459	102	5821	11	30
40	8616	47	4036	51	4789	11	7422	99	6358	101	5811	10	20
50	8664	48	4086	50	4800	11	7323	99	6256	102	5800	11	10
38 0	0.218711	47	0.224137	51	1.024811	11	4.57224	99	4.46155	101	0.975790	10	**22** 0
10	8758	47	4188	51	4822	11	7126	98	6054	101	5779	11	50
20	8806	48	4239	51	4833	11	7027	99	5952	102	5768	11	40
30	8853	47	4290	51	4844	11	6928	99	5851	101	5758	10	30
40	8900	47	4341	51	4856	12	6829	99	5750	101	5747	11	20
50	8948	48	4392	51	4867	11	6730	99	5649	101	5737	10	10
39 0	0.218995	47	0.224443	51	1.024878	11	4.56632	98	4.45548	101	0.975726	11	**21** 0
10	9042	47	4494	51	4889	11	6533	99	5446	102	5715	11	50
20	9089	47	4545	51	4900	11	6435	98	5345	101	5705	10	40
30	9137	48	4596	51	4911	11	6336	99	5244	101	5694	11	30
40	9184	47	4647	51	4922	11	6238	98	5144	100	5684	10	20
50	9231	47	4698	51	4934	12	6139	99	5043	101	5673	11	10
40 0	0.219279	48	0.224748	50	1.024945	11	4.56041	98	4.44942	101	0.975662	11	**20** 0
	cos		cotg		cosec		sec		tang		sin		

12		48		51		99		101		103		105		107	
1	1.2	1	4.8	1	5.1	1	9.9	1	10.1	1	10.3	1	10.5	1	10.7
2	2.4	2	9.6	2	10.2	2	19.8	2	20.2	2	20.6	2	21.0	2	21.4
3	3.6	3	14.4	3	15.3	3	29.7	3	30.3	3	30.9	3	31.5	3	32.1
4	4.8	4	19.2	4	20.4	4	39.6	4	40.4	4	41.2	4	42.0	4	42.8
5	6.0	5	24.0	5	25.5	5	49.5	5	50.5	5	51.5	5	52.5	5	53.5
6	7.2	6	28.8	6	30.6	6	59.4	6	60.6	6	61.8	6	63.0	6	64.2
7	8.4	7	33.6	7	35.7	7	69.3	7	70.7	7	72.1	7	73.5	7	74.9
8	9.6	8	38.4	8	40.8	8	79.2	8	80.8	8	82.4	8	84.0	8	85.6
9	10.8	9	43.2	9	45.9	9	89.1	9	90.9	9	92.7	9	94.5	9	96.3

77°

12°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.219279		0.224748		1.024945		4.56041		4.44942		0.975662		**20′** 0″
10	9326	47	4799	51	4956	11	5942	99	4841	101	5652	10	50
20	9373	47	4850	51	4967	11	5844	98	4740	101	5641	11	40
30	9421	48	4901	51	4978	11	5746	98	4640	100	5630	11	30
40	9468	47	4952	51	4990	12	5648	98	4539	101	5620	10	20
50	9515	47	5003	51	5001	11	5549	99	4438	101	5609	11	10
41 0	0.219562	47	0.225054	51	1.025012	11	4.55451	98	4.44338	100	0.975598	11	**19** 0
10	9610	48	5105	51	5023	11	5353	98	4237	101	5588	10	50
20	9657	47	5156	51	5034	11	5255	98	4137	100	5577	11	40
30	9704	47	5207	51	5045	11	5157	98	4036	101	5567	10	30
40	9752	48	5258	51	5057	12	5059	98	3936	100	5556	11	20
50	9799	47	5309	51	5068	11	4961	98	3835	101	5545	11	10
42 0	0.219846	47	0.225360	51	1.025079	11	4.54863	98	4.43735	100	0.975535	10	**18** 0
10	9893	47	5411	51	5090	11	4766	97	3635	100	5524	11	50
20	9941	48	5462	51	5101	11	4668	98	3534	101	5513	11	40
30	0.219988	47	5513	51	5113	12	4570	98	3434	100	5503	10	30
40	0.220035	47	5564	51	5124	11	4472	98	3334	100	5492	11	20
50	0083	48	5614	50	5135	11	4375	97	3234	100	5481	11	10
43 0	0.220130	47	0.225665	51	1.025146	11	4.54277	98	4.43134	100	0.975471	10	**17** 0
10	0177	47	5716	51	5157	11	4180	97	3034	100	5460	11	50
20	0225	48	5767	51	5169	12	4082	98	2934	100	5449	11	40
30	0272	47	5818	51	5180	11	3984	98	2834	100	5439	10	30
40	0319	47	5869	51	5191	11	3887	97	2734	100	5428	11	20
50	0366	47	5920	51	5202	11	3790	97	2634	100	5417	11	10
44 0	0.220414	48	0.225971	51	1.025214	12	4.53692	98	4.42534	100	0.975406	11	**16** 0
10	0461	47	6022	51	5225	11	3595	97	2435	99	5396	10	50
20	0508	47	6073	51	5236	11	3498	97	2335	100	5385	11	40
30	0556	48	6124	51	5247	11	3400	98	2235	100	5374	11	30
40	0603	47	6175	51	5259	12	3303	97	2136	99	5364	10	20
50	0650	47	6226	51	5270	11	3206	97	2036	100	5353	11	10
45 0	0.220697	47	0.226277	51	1.025281	11	4.53109	97	4.41936	100	0.975342	11	**15** 0
10	0745	48	6328	51	5292	11	3012	97	1837	99	5332	10	50
20	0792	47	6379	51	5304	12	2915	97	1737	100	5321	11	40
30	0839	47	6430	51	5315	11	2818	97	1638	99	5310	11	30
40	0887	48	6481	51	5326	11	2721	97	1539	99	5300	10	20
50	0934	47	6532	51	5337	11	2624	97	1439	100	5289	11	10
46 0	0.220981	47	0.226583	51	1.025349	12	4.52527	97	4.41340	99	0.975278	11	**14** 0
10	1028	47	6634	51	5360	11	2430	97	1241	99	5267	11	50
20	1076	48	6685	51	5371	11	2334	96	1141	100	5257	10	40
30	1123	47	6736	51	5382	11	2237	97	1042	99	5246	11	30
40	1170	47	6787	51	5394	12	2140	97	0943	99	5235	11	20
50	1218	48	6838	51	5405	11	2044	96	0844	99	5224	11	10
47 0	0.221265	47	0.226889	51	1.025416	11	4.51947	97	4.40745	99	0.975214	10	**13** 0
10	1312	47	6940	51	5427	11	1851	96	0646	99	5203	11	50
20	1359	47	6990	50	5439	12	1754	97	0547	99	5192	11	40
30	1407	48	7041	51	5450	11	1658	96	0448	99	5182	10	30
40	1454	47	7092	51	5461	11	1561	97	0349	99	5171	11	20
50	1501	47	7143	51	5473	12	1465	96	0250	99	5160	11	10
48 0	0.221548	47	0.227194	51	1.025484	11	4.51368	97	4.40152	98	0.975149	11	**12** 0
10	1596	48	7245	51	5495	11	1272	96	4.40053	99	5139	10	50
20	1643	47	7296	51	5507	12	1176	96	4.39954	99	5128	11	40
30	1690	47	7347	51	5518	11	1080	96	9856	98	5117	11	30
40	1738	48	7398	51	5529	11	0984	96	9757	99	5106	11	20
50	1785	47	7449	51	5540	11	0887	97	9658	99	5096	10	10
49 0	0.221832	47	0.227500	51	1.025552	12	4.50791	96	4.39560	98	0.975085	11	**11** 0
10	1879	47	7551	51	5563	11	0695	96	9461	99	5074	11	50
20	1927	48	7602	51	5574	11	0599	96	9363	98	5063	11	40
30	1974	47	7653	51	5586	12	0503	96	9264	99	5053	10	30
40	2021	47	7704	51	5597	11	0407	96	9166	98	5042	11	20
50	2069	48	7755	51	5608	11	0311	96	9068	98	5031	11	10
50 0	0.222116	47	0.227806	51	1.025620	12	4.50216	95	4.38969	99	0.975020	11	**10** 0
	cos		cotg		cosec		sec		tang		sin		

11

1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

50

1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

52

1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

94

1	9.4
2	18.8
3	28.2
4	37.6
5	47.0
6	56.4
7	65.8
8	75.2
9	84.6

96

1	9.6
2	19.2
3	28.8
4	38.4
5	48.0
6	57.6
7	67.2
8	76.8
9	86.4

98

1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2

100

1	10.0
2	20.0
3	30.0
4	40.0
5	50.0
6	60.0
7	70.0
8	80.0
9	90.0

77°

12°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.222116		0.227806		1.025620		4.50216		4.38969		0.975020		**10′** 0″
10	2163	47	7857	51	5631	11	0120	96	8871	98	5010	10	50
20	2210	47	7908	51	5642	11	4.50024	96	8773	98	4999	11	40
30	2258	48	7959	51	5654	12	4.49928	96	8675	98	4988	11	30
40	2305	47	8010	51	5665	11	9833	95	8577	98	4977	11	20
50	2352	47	8061	51	5676	11	9737	96	8479	98	4966	11	10
51 0	0.222399	47	0.228112	51	1.025688	12	4.49642	95	4.38381	98	0.974956	10	**9** 0
10	2447	48	8163	51	5699	11	9546	96	8283	98	4945	11	50
20	2494	47	8214	51	5710	11	9450	96	8185	98	4934	11	40
30	2541	47	8265	51	5722	12	9355	95	8087	98	4923	11	30
40	2588	47	8316	51	5733	11	9260	95	7989	98	4912	11	20
50	2636	48	8367	51	5744	11	9164	96	7891	98	4902	10	10
52 0	0.222683	47	0.228418	51	1.025756	12	4.49069	95	4.37793	98	0.974891	11	**8** 0
10	2730	47	8469	51	5767	11	8974	95	7695	98	4880	11	50
20	2778	48	8520	51	5779	12	8878	96	7598	97	4869	11	40
30	2825	47	8571	51	5790	11	8783	95	7500	98	4859	10	30
40	2872	47	8622	51	5801	11	8688	95	7402	98	4848	11	20
50	2919	47	8673	51	5813	12	8593	95	7305	97	4837	11	10
53 0	0.222967	48	0.228724	51	1.025824	11	4.48498	95	4.37207	98	0.974826	11	**7** 0
10	3014	47	8775	51	5835	11	8403	95	7110	97	4815	11	50
20	3061	47	8826	51	5847	12	8308	95	7012	98	4804	11	40
30	3108	47	8878	52	5858	11	8213	95	6915	97	4794	10	30
40	3156	48	8929	51	5870	12	8118	95	6818	97	4783	11	20
50	3203	47	8980	51	5881	11	8023	95	6720	98	4772	11	10
54 0	0.223250	47	0.229031	51	1.025892	11	4.47928	95	4.36623	97	0.974761	11	**6** 0
10	3297	47	9082	51	5904	12	7833	95	6526	97	4750	11	50
20	3345	48	9133	51	5915	11	7739	94	6428	98	4740	10	40
30	3392	47	9184	51	5926	11	7644	95	6331	97	4729	11	30
40	3439	47	9235	51	5938	12	7549	95	6234	97	4718	11	20
50	3486	47	9286	51	5949	11	7455	94	6137	97	4707	11	10
55 0	0.223534	48	0.229337	51	1.025961	12	4.47360	95	4.36040	97	0.974696	11	**5** 0
10	3581	47	9388	51	5972	11	7265	95	5943	97	4685	11	50
20	3628	47	9439	51	5984	12	7171	94	5846	97	4675	10	40
30	3675	47	9490	51	5995	11	7076	95	5749	97	4664	11	30
40	3723	48	9541	51	6006	11	6982	94	5652	97	4653	11	20
50	3770	47	9592	51	6018	12	6888	94	5555	97	4642	11	10
56 0	0.223817	47	0.229643	51	1.026029	11	4.46793	95	4.35459	96	0.974631	11	**4** 0
10	3864	47	9694	51	6041	12	6699	94	5362	97	4620	11	50
20	3912	48	9745	51	6052	11	6605	94	5265	97	4609	11	40
30	3959	47	9796	51	6063	11	6510	95	5168	97	4599	10	30
40	4006	47	9847	51	6075	12	6416	94	5072	96	4588	11	20
50	4053	47	9898	51	6086	11	6322	94	4975	97	4577	11	10
57 0	0.224101	48	0.229949	51	1.026098	12	4.46228	94	4.34879	96	0.974566	11	**3** 0
10	4148	47	0.230000	51	6109	11	6134	94	4782	97	4555	11	50
20	4195	47	0051	51	6121	12	6040	94	4686	96	4544	11	40
30	4242	47	0102	51	6132	11	5946	94	4589	97	4533	11	30
40	4290	48	0153	51	6144	12	5852	94	4493	96	4523	10	20
50	4337	47	0204	51	6155	11	5758	94	4396	97	4512	11	10
58 0	0.224384	47	0.230255	51	1.026166	11	4.45664	94	4.34300	96	0.974501	11	**2** 0
10	4431	47	0307	52	6178	12	5570	94	4204	96	4490	11	50
20	4479	48	0358	51	6189	11	5477	93	4108	96	4479	11	40
30	4526	47	0409	51	6201	12	5383	94	4011	97	4468	11	30
40	4573	47	0460	51	6212	11	5289	94	3915	96	4457	11	20
50	4620	47	0511	51	6224	12	5196	93	3819	96	4446	11	10
59 0	0.224668	48	0.230562	51	1.026235	11	4.45102	94	4.33723	96	0.974435	11	**1** 0
10	4715	47	0613	51	6247	12	5008	94	3627	96	4425	10	50
20	4762	47	0664	51	6258	11	4915	93	3531	96	4414	11	40
30	4809	47	0715	51	6270	12	4821	94	3435	96	4403	11	30
40	4857	48	0766	51	6281	11	4728	93	3339	96	4392	11	20
50	4904	47	0817	51	6293	12	4635	93	3243	96	4381	11	10
60 0	0.224951	47	0.230868	51	1.026304	11	4.44541	94	4.33148	95	0.974370	11	**0** 0
	cos		cotg		cosec		sec		tang		sin		

12		48		51		93		95		97		99		101	
1	1.2	1	4.8	1	5.1	1	9.3	1	9.5	1	9.7	1	9.9	1	10.1
2	2.4	2	9.6	2	10.2	2	18.6	2	19.0	2	19.4	2	19.8	2	20.2
3	3.6	3	14.4	3	15.3	3	27.9	3	28.5	3	29.1	3	29.7	3	30.3
4	4.8	4	19.2	4	20.4	4	37.2	4	38.0	4	38.8	4	39.6	4	40.4
5	6.0	5	24.0	5	25.5	5	46.5	5	47.5	5	48.5	5	49.5	5	50.5
6	7.2	6	28.8	6	30.6	6	55.8	6	57.0	6	58.2	6	59.4	6	60.6
7	8.4	7	33.6	7	35.7	7	65.1	7	66.5	7	67.9	7	69.3	7	70.7
8	9.6	8	38.4	8	40.8	8	74.4	8	76.0	8	77.6	8	79.2	8	80.8
9	10.8	9	43.2	9	45.9	9	83.7	9	85.5	9	87.3	9	89.1	9	90.9

77°

13°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.224951		0.230868		1.026304		4.44541		4.33148		0.974370		**60′** 0″
10	4998	47	0919	51	6316	12	4448	93	3052	96	4359	11	50
20	5046	48	0970	51	6327	11	4355	93	2956	96	4348	11	40
30	5093	47	1021	51	6339	12	4261	94	2860	96	4337	11	30
40	5140	47	1072	51	6350	11	4168	93	2765	95	4326	11	20
50	5187	47	1124	52	6362	12	4075	93	2669	96	4316	10	10
1 0	0.225234	47	0.231175	51	1.026373	11	4.43982	93	4.32573	96	0.974305	11	**59** 0
10	5282	48	1226	51	6385	12	3889	93	2478	95	4294	11	50
20	5329	47	1277	51	6396	11	3796	93	2382	96	4283	11	40
30	5376	47	1328	51	6408	12	3703	93	2287	95	4272	11	30
40	5423	47	1379	51	6419	11	3610	93	2192	95	4261	11	20
50	5471	48	1430	51	6431	12	3517	93	2096	96	4250	11	10
2 0	0.225518	47	0.231481	51	1.026442	11	4.43424	93	4.32001	95	0.974239	11	**58** 0
10	5565	47	1532	51	6454	12	3331	93	1905	96	4228	11	50
20	5612	47	1583	51	6465	11	3238	93	1810	95	4217	11	40
30	5660	48	1634	51	6477	12	3145	93	1715	95	4206	11	30
40	5707	47	1685	51	6488	11	3053	92	1620	95	4195	11	20
50	5754	47	1736	51	6500	12	2960	93	1525	95	4184	11	10
3 0	0.225801	47	0.231788	52	1.026511	11	4.42867	93	4.31430	95	0.974173	11	**57** 0
10	5848	47	1839	51	6523	12	2775	92	1334	96	4162	11	50
20	5896	48	1890	51	6534	11	2682	93	1239	95	4151	11	40
30	5943	47	1941	51	6546	12	2590	92	1144	95	4141	10	30
40	5990	47	1992	51	6557	11	2497	93	1050	94	4130	11	20
50	6037	47	2043	51	6569	12	2405	92	0955	95	4119	11	10
4 0	0.226085	48	0.232094	51	1.026581	12	4.42312	93	4.30860	95	0.974108	11	**56** 0
10	6132	47	2145	51	6592	11	2220	92	0765	95	4097	11	50
20	6179	47	2196	51	6604	12	2128	92	0670	95	4086	11	40
30	6226	47	2247	51	6615	11	2035	93	0575	95	4075	11	30
40	6274	48	2298	51	6627	12	1943	92	0481	94	4064	11	20
50	6321	47	2350	52	6638	11	1851	92	0386	95	4053	11	10
5 0	0.226368	47	0.232401	51	1.026650	12	4.41759	92	4.30291	95	0.974042	11	**55** 0
10	6415	47	2452	51	6661	11	1666	93	0197	94	4031	11	50
20	6462	47	2503	51	6673	12	1574	92	0102	95	4020	11	40
30	6510	48	2554	51	6685	12	1482	92	4.30008	94	4009	11	30
40	6557	47	2605	51	6696	11	1390	92	4.29913	95	3998	11	20
50	6604	47	2656	51	6708	12	1298	92	9819	94	3987	11	10
6 0	0.226651	47	0.232707	51	1.026719	11	4.41206	92	4.29724	95	0.973976	11	**54** 0
10	6699	48	2758	51	6731	12	1114	92	9630	94	3965	11	50
20	6746	47	2810	52	6743	12	1023	91	9536	94	3954	11	40
30	6793	47	2861	51	6754	11	0931	92	9441	95	3943	11	30
40	6840	47	2912	51	6766	12	0839	92	9347	94	3932	11	20
50	6887	47	2963	51	6777	11	0747	92	9253	94	3921	11	10
7 0	0.226935	48	0.233014	51	1.026789	12	4.40656	91	4.29159	94	0.973910	11	**53** 0
10	6982	47	3065	51	6801	12	0564	92	9065	94	3899	11	50
20	7029	47	3116	51	6812	11	0472	92	8971	94	3888	11	40
30	7076	47	3167	51	6824	12	0381	91	8877	94	3877	11	30
40	7123	47	3218	51	6835	11	0289	92	8783	94	3866	11	20
50	7171	48	3270	52	6847	12	0198	91	8689	94	3855	11	10
8 0	0.227218	47	0.233321	51	1.026859	12	4.40106	92	4.28595	94	0.973844	11	**52** 0
10	7265	47	3372	51	6870	11	4.40015	91	8501	94	3833	11	50
20	7312	47	3423	51	6882	12	4.39923	92	8407	94	3822	11	40
30	7360	48	3474	51	6893	11	9832	91	8313	94	3811	11	30
40	7407	47	3525	51	6905	12	9741	91	8219	94	3800	11	20
50	7454	47	3576	51	6917	12	9649	92	8126	93	3789	11	10
9 0	0.227501	47	0.233627	51	1.026928	11	4.39558	91	4.28032	94	0.973778	11	**51** 0
10	7548	47	3679	52	6940	12	9467	91	7938	94	3767	11	50
20	7596	48	3730	51	6952	12	9376	91	7845	93	3756	11	40
30	7643	47	3781	51	6963	11	9285	91	7751	94	3745	11	30
40	7690	47	3832	51	6975	12	9194	91	7658	93	3734	11	20
50	7737	47	3883	51	6987	12	9103	91	7564	94	3723	11	10
10 0	0.227784	47	0.233934	51	1.026998	11	4.39012	91	4.27471	93	0.973712	11	**50** 0
	cos		cotg		cosec		sec		tang		sin		

76°

11

1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

51

1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

88

1	8.8
2	17.6
3	26.4
4	35.2
5	44.0
6	52.8
7	61.6
8	70.4
9	79.2

90

1	9.0
2	18.0
3	27.0
4	36.0
5	45.0
6	54.0
7	63.0
8	72.0
9	81.0

92

1	9.2
2	18.4
3	27.6
4	36.8
5	46.0
6	55.2
7	64.4
8	73.6
9	82.8

94

1	9.4
2	18.8
3	28.2
4	37.6
5	47.0
6	56.4
7	65.8
8	75.2
9	84.6

95

1	9.5
2	19.0
3	28.5
4	38.0
5	47.5
6	57.0
7	66.5
8	76.0
9	85.5

13°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.227784		0.233934		1.026998		4.39012		4.27471		0.973712		**50′** 0″
10	7832	48	3985	51	7010	12	8921	91	7377	94	3701	11	50
20	7879	47	4036	51	7021	11	8830	91	7284	93	3689	12	40
30	7926	47	4088	52	7033	12	8739	91	7191	93	3678	11	30
40	7973	47	4139	51	7045	12	8648	91	7097	94	3667	11	20
50	8020	47	4190	51	7056	11	8557	91	7004	93	3656	11	10
11 0	0.228068	48	0.234241	51	1.027068	12	4.38466	91	4.26911	93	0.973645	11	**49** 0
10	8115	47	4292	51	7080	12	8376	90	6818	93	3634	11	50
20	8162	47	4343	51	7091	11	8285	91	6724	94	3623	11	40
30	8209	47	4394	51	7103	12	8194	91	6631	93	3612	11	30
40	8256	47	4446	52	7115	12	8104	90	6538	93	3601	11	20
50	8304	48	4497	51	7126	11	8013	91	6445	93	3590	11	10
12 0	0.228351	47	0.234548	51	1.027138	12	4.37923	90	4.26352	93	0.973579	11	**48** 0
10	8398	47	4599	51	7150	12	7832	91	6259	93	3568	11	50
20	8445	47	4650	51	7161	11	7742	90	6166	93	3557	11	40
30	8492	47	4701	51	7173	12	7651	91	6073	93	3546	11	30
40	8540	48	4752	51	7185	12	7561	90	5981	92	3535	11	20
50	8587	47	4804	52	7197	12	7470	91	5888	93	3524	11	10
13 0	0.228634	47	0.234855	51	1.027208	11	4.37380	90	4.25795	93	0.973512	12	**47** 0
10	8681	47	4906	51	7220	12	7290	90	5702	93	3501	11	50
20	8728	47	4957	51	7232	12	7200	90	5610	92	3490	11	40
30	8776	48	5008	51	7243	11	7109	91	5517	93	3479	11	30
40	8823	47	5059	51	7255	12	7019	90	5424	93	3468	11	20
50	8870	47	5111	52	7267	12	6929	90	5332	92	3457	11	10
14 0	0.228917	47	0.235162	51	1.027278	11	4.36839	90	4.25239	93	0.973446	11	**46** 0
10	8964	47	5213	51	7290	12	6749	90	5147	92	3435	11	50
20	9012	48	5264	51	7302	12	6659	90	5054	93	3424	11	40
30	9059	47	5315	51	7314	12	6569	90	4962	92	3413	11	30
40	9106	47	5366	51	7325	11	6479	90	4869	93	3401	12	20
50	9153	47	5418	52	7337	12	6389	90	4777	92	3390	11	10
15 0	0.229200	47	0.235469	51	1.027349	12	4.36299	90	4.24685	92	0.973379	11	**45** 0
10	9248	48	5520	51	7361	12	6210	89	4593	92	3368	11	50
20	9295	47	5571	51	7372	11	6120	90	4500	93	3357	11	40
30	9342	47	5622	51	7384	12	6030	90	4408	92	3346	11	30
40	9389	47	5673	51	7396	12	5940	90	4316	92	3335	11	20
50	9436	47	5725	52	7407	11	5851	89	4224	92	3324	11	10
16 0	0.229484	48	0.235776	51	1.027419	12	4.35761	90	4.24132	92	0.973313	11	**44** 0
10	9531	47	5827	51	7431	12	5672	89	4040	92	3301	12	50
20	9578	47	5878	51	7443	12	5582	90	3948	92	3290	11	40
30	9625	47	5929	51	7454	11	5492	90	3856	92	3279	11	30
40	9672	47	5980	51	7466	12	5403	89	3764	92	3268	11	20
50	9719	47	6032	52	7478	12	5314	89	3672	92	3257	11	10
17 0	0.229767	48	0.236083	51	1.027490	12	4.35224	90	4.23580	92	0.973246	11	**43** 0
10	9814	47	6134	51	7501	11	5135	89	3488	92	3235	11	50
20	9861	47	6185	51	7513	12	5046	89	3397	91	3223	12	40
30	9908	47	6236	51	7525	12	4956	90	3305	92	3212	11	30
40	0.229955	47	6288	52	7537	12	4867	89	3213	92	3201	11	20
50	0.230003	48	6339	51	7549	12	4778	89	3121	92	3190	11	10
18 0	0.230050	47	0.236390	51	1.027560	11	4.34689	89	4.23030	91	0.973179	11	**42** 0
10	0097	47	6441	51	7572	12	4599	90	2938	92	3168	11	50
20	0144	47	6492	51	7584	12	4510	89	2847	91	3157	11	40
30	0191	47	6544	52	7596	12	4421	89	2755	92	3145	12	30
40	0238	47	6595	51	7607	11	4332	89	2664	91	3134	11	20
50	0286	48	6646	51	7619	12	4243	89	2572	92	3123	11	10
19 0	0.230333	47	0.236697	51	1.027631	12	4.34154	89	4.22481	91	0.973112	11	**41** 0
10	0380	47	6748	51	7643	12	4065	89	2389	92	3101	11	50
20	0427	47	6800	52	7655	12	3977	88	2298	91	3090	11	40
30	0474	47	6851	51	7666	11	3888	89	2207	91	3078	12	30
40	0522	48	6902	51	7678	12	3799	89	2116	91	3067	11	20
50	0569	47	6953	51	7690	12	3710	89	2024	92	3056	11	10
20 0	0.230616	47	0.237004	51	1.027702	12	4.33622	88	4.21933	91	0.973045	11	**40** 0
	cos		cotg		cosec		sec		tang		sin		

12		48		52		89		91		93		94		96	
1	1.2	1	4.8	1	5.2	1	8.9	1	9.1	1	9.3	1	9.4	1	9.6
2	2.4	2	9.6	2	10.4	2	17.8	2	18.2	2	18.6	2	18.8	2	19.2
3	3.6	3	14.4	3	15.6	3	26.7	3	27.3	3	27.9	3	28.2	3	28.8
4	4.8	4	19.2	4	20.8	4	35.6	4	36.4	4	37.2	4	37.6	4	38.4
5	6.0	5	24.0	5	26.0	5	44.5	5	45.5	5	46.5	5	47.0	5	48.0
6	7.2	6	28.8	6	31.2	6	53.4	6	54.6	6	55.8	6	56.4	6	57.6
7	8.4	7	33.6	7	36.4	7	62.3	7	63.7	7	65.1	7	65.8	7	67.2
8	9.6	8	38.4	8	41.6	8	71.2	8	72.8	8	74.4	8	75.2	8	76.8
9	10.8	9	43.2	9	46.8	9	80.1	9	81.9	9	83.7	9	84.6	9	86.4

76°

13°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.230616		0.237004		1.027702		4.33622		4.21933		0.973045		**40′** 0″
10	0663	47	7056	52	7714	12	3533	89	1842	91	3034	11	50
20	0710	47	7107	51	7725	11	3444	89	1751	91	3023	11	40
30	0757	47	7158	51	7737	12	3356	88	1660	91	3011	12	30
40	0805	48	7209	51	7749	12	3267	89	1569	91	3000	11	20
50	0852	47	7260	51	7761	12	3178	89	1478	91	2989	11	10
21 0	0.230899	47	0.237312	52	1.027773	12	4.33090	88	4.21387	91	0.972978	11	**39** 0
10	0946	47	7363	51	7785	12	3002	88	1296	91	2967	11	50
20	0993	47	7414	51	7796	11	2913	89	1205	91	2955	12	40
30	1040	47	7465	51	7808	12	2825	88	1114	91	2944	11	30
40	1088	48	7516	51	7820	12	2736	89	1023	91	2933	11	20
50	1135	47	7568	52	7832	12	2648	88	0933	90	2922	11	10
22 0	0.231182	47	0.237619	51	1.027844	12	4.32560	88	4.20842	91	0.972911	11	**38** 0
10	1229	47	7670	51	7856	12	2472	88	0751	91	2899	12	50
20	1276	47	7721	51	7867	11	2383	89	0661	90	2888	11	40
30	1323	47	7773	52	7879	12	2295	88	0570	91	2877	11	30
40	1371	48	7824	51	7891	12	2207	88	0479	91	2866	11	20
50	1418	47	7875	51	7903	12	2119	88	0389	90	2854	12	10
23 0	0.231465	47	0.237926	51	1.027915	12	4.32031	88	4.20298	91	0.972843	11	**37** 0
10	1512	47	7977	51	7927	12	1943	88	0208	90	2832	11	50
20	1559	47	8029	52	7939	12	1855	88	0117	91	2821	11	40
30	1606	47	8080	51	7950	11	1767	88	4.20027	90	2810	11	30
40	1654	48	8131	51	7962	12	1679	88	4.19937	90	2798	12	20
50	1701	47	8182	51	7974	12	1591	88	9846	91	2787	11	10
24 0	0.231748	47	0.238234	52	1.027986	12	4.31503	88	4.19756	90	0.972776	11	**36** 0
10	1795	47	8285	51	7998	12	1416	87	9666	90	2765	11	50
20	1842	47	8336	51	8010	12	1328	88	9576	90	2753	12	40
30	1889	47	8387	51	8022	12	1240	88	9485	91	2742	11	30
40	1937	48	8439	52	8034	12	1152	88	9395	90	2731	11	20
50	1984	47	8490	51	8045	11	1065	87	9305	90	2720	11	10
25 0	0.232031	47	0.238541	51	1.028057	12	4.30977	88	4.19215	90	0.972708	12	**35** 0
10	2078	47	8592	51	8069	12	0890	87	9125	90	2697	11	50
20	2125	47	8644	52	8081	12	0802	88	9035	90	2686	11	40
30	2172	47	8695	51	8093	12	0715	87	8945	90	2675	11	30
40	2219	47	8746	51	8105	12	0627	88	8855	90	2663	12	20
50	2267	48	8797	51	8117	12	0540	87	8765	90	2652	11	10
26 0	0.232314	47	0.238848	51	1.028129	12	4.30452	88	4.18675	90	0.972641	11	**34** 0
10	2361	47	8900	52	8141	12	0365	87	8586	89	2630	11	50
20	2408	47	8951	51	8153	12	0278	87	8496	90	2618	12	40
30	2455	47	9002	51	8164	11	0190	88	8406	90	2607	11	30
40	2502	47	9053	51	8176	12	0103	87	8316	90	2596	11	20
50	2550	48	9105	52	8188	12	4.30016	87	8227	89	2585	11	10
27 0	0.232597	47	0.239156	51	1.028200	12	4.29929	87	4.18137	90	0.972573	12	**33** 0
10	2644	47	9207	51	8212	12	9842	87	8048	89	2562	11	50
20	2691	47	9259	52	8224	12	9754	88	7958	90	2551	11	40
30	2738	47	9310	51	8236	12	9667	87	7868	90	2539	12	30
40	2785	47	9361	51	8248	12	9580	87	7779	89	2528	11	20
50	2832	47	9412	51	8260	12	9493	87	7690	89	2517	11	10
28 0	0.232880	48	0.239464	52	1.028272	12	4.29406	87	4.17600	90	0.972506	11	**32** 0
10	2927	47	9515	51	8284	12	9319	87	7511	89	2494	12	50
20	2974	47	9566	51	8296	12	9233	86	7421	90	2483	11	40
30	3021	47	9617	51	8308	12	9146	87	7332	89	2472	11	30
40	3068	47	9669	52	8320	12	9059	87	7243	89	2460	12	20
50	3115	47	9720	51	8331	11	8972	87	7154	89	2449	11	10
29 0	0.233163	48	0.239771	51	1.028343	12	4.28885	87	4.17064	90	0.972438	11	**31** 0
10	3210	47	9822	51	8355	12	8799	86	6975	89	2426	12	50
20	3257	47	9874	52	8367	12	8712	87	6886	89	2415	11	40
30	3304	47	9925	51	8379	12	8625	87	6797	89	2404	11	30
40	3351	47	0.239976	51	8391	12	8539	86	6708	89	2393	11	20
50	3398	47	0.240027	51	8403	12	8452	87	6619	89	2381	12	10
30 0	0.233445	47	0.240079	52	1.028415	12	4.28366	86	4.16530	89	0.972370	11	**30** 0
	cos		cotg		cosec		sec		tang		sin		

11

1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

13

1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

52

1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

85

1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

87

1	8.7
2	17.4
3	26.1
4	34.8
5	43.5
6	52.2
7	60.9
8	69.6
9	78.3

89

1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

90

1	9.0
2	18.0
3	27.0
4	36.0
5	45.0
6	54.0
7	63.0
8	72.0
9	81.0

76°

13°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.233445	48	0.240079	51	1.028415	12	4.28366	87	4.16530	89	0.972370	11	**30′** 0″
10	3493	47	0130	51	8427	12	8279	86	6441	89	2359	12	50
20	3540	47	0181	52	8439	12	8193	87	6352	89	2347	11	40
30	3587	47	0233	51	8451	12	8106	86	6263	89	2336	11	30
40	3634	47	0284	51	8463	12	8020	86	6174	89	2325	12	20
50	3681	47	0335	51	8475	12	7934	86	6086	88	2313	12	10
31 0	0.233728	47	0.240386	51	1.028487	12	4.27847	87	4.15997	89	0.972302	11	**29** 0
10	3775	47	0438	52	8499	12	7761	86	5908	89	2291	11	50
20	3822	47	0489	51	8511	12	7675	86	5819	89	2279	12	40
30	3870	48	0540	51	8523	12	7589	86	5731	88	2268	11	30
40	3917	47	0592	52	8535	12	7503	86	5642	89	2257	11	20
50	3964	47	0643	51	8547	12	7416	87	5554	88	2245	12	10
32 0	0.234011	47	0.240694	51	1.028559	12	4.27330	86	4.15465	89	0.972234	11	**28** 0
10	4058	47	0745	51	8571	12	7244	86	5376	89	2223	11	50
20	4105	47	0797	52	8583	12	7158	86	5288	88	2211	12	40
30	4152	47	0848	51	8595	12	7072	86	5200	88	2200	11	30
40	4200	48	0899	51	8607	12	6986	86	5111	89	2189	11	20
50	4247	47	0951	52	8619	12	6900	86	5023	88	2177	12	10
33 0	0.234294	47	0.241002	51	1.028631	12	4.26814	86	4.14934	89	0.972166	11	**27** 0
10	4341	47	1053	51	8643	12	6729	85	4846	88	2154	12	50
20	4388	47	1105	52	8655	12	6643	86	4758	88	2143	11	40
30	4435	47	1156	51	8667	12	6557	86	4670	88	2132	11	30
40	4482	47	1207	51	8679	12	6471	86	4581	89	2120	12	20
50	4529	47	1258	51	8691	12	6386	85	4493	88	2109	11	10
34 0	0.234577	48	0.241310	52	1.028703	12	4.26300	86	4.14405	88	0.972098	11	**26** 0
10	4624	47	1361	51	8715	12	6214	86	4317	88	2086	12	50
20	4671	47	1412	51	8727	12	6129	85	4229	88	2075	11	40
30	4718	47	1464	52	8739	12	6043	86	4141	88	2064	11	30
40	4765	47	1515	51	8751	12	5958	85	4053	88	2052	12	20
50	4812	47	1566	51	8763	12	5872	86	3965	88	2041	11	10
35 0	0.234859	47	0.241618	52	1.028776	13	4.25787	85	4.13877	88	0.972029	12	**25** 0
10	4906	47	1669	51	8788	12	5701	86	3789	88	2018	11	50
20	4954	48	1720	51	8800	12	5616	85	3701	88	2007	11	40
30	5001	47	1772	52	8812	12	5531	85	3614	87	1995	12	30
40	5048	47	1823	51	8824	12	5445	86	3526	88	1984	11	20
50	5095	47	1874	51	8836	12	5360	85	3438	88	1972	12	10
36 0	0.235142	47	0.241925	51	1.028848	12	4.25275	85	4.13350	88	0.971961	11	**24** 0
10	5189	47	1977	52	8860	12	5190	85	3263	87	1950	11	50
20	5236	47	2028	51	8872	12	5104	86	3175	88	1938	12	40
30	5283	47	2079	51	8884	12	5019	85	3088	87	1927	11	30
40	5331	48	2131	52	8896	12	4934	85	3000	88	1915	12	20
50	5378	47	2182	51	8908	12	4849	85	2912	88	1904	11	10
37 0	0.235425	47	0.242233	51	1.028920	12	4.24764	85	4.12825	87	0.971893	11	**23** 0
10	5472	47	2285	52	8932	12	4679	85	2738	87	1881	12	50
20	5519	47	2336	51	8944	12	4594	85	2650	88	1870	11	40
30	5566	47	2387	51	8957	13	4509	85	2563	87	1858	12	30
40	5613	47	2439	52	8969	12	4424	85	2475	88	1847	11	20
50	5660	47	2490	51	8981	12	4339	85	2388	87	1835	12	10
38 0	0.235708	48	0.242541	51	1.028993	12	4.24255	84	4.12301	87	0.971824	11	**22** 0
10	5755	47	2593	52	9005	12	4170	85	2214	87	1813	11	50
20	5802	47	2644	51	9017	12	4085	85	2126	88	1801	12	40
30	5849	47	2695	51	9029	12	4000	85	2039	87	1790	11	30
40	5896	47	2747	52	9041	12	3916	84	1952	87	1778	12	20
50	5943	47	2798	51	9053	12	3831	85	1865	87	1767	11	10
39 0	0.235990	47	0.242849	51	1.029066	13	4.23746	85	4.11778	87	0.971755	12	**21** 0
10	6037	47	2901	52	9078	12	3662	84	1691	87	1744	11	50
20	6084	47	2952	51	9090	12	3577	85	1604	87	1733	11	40
30	6132	48	3003	51	9102	12	3493	84	1517	87	1721	12	30
40	6179	47	3055	52	9114	12	3408	85	1430	87	1710	11	20
50	6226	47	3106	51	9126	12	3324	84	1343	87	1698	12	10
40 0	0.236273	47	0.243157	51	1.029138	12	4.23239	85	4.11256	87	0.971687	11	**20** 0
	cos		cotg		cosec		sec		tang		sin		

12									
1	1.2	47		84		88		91	
2	2.4	1	4.7	1	8.4	1	8.8	1	9.1
3	3.6	2	9.4	2	16.8	2	17.6	2	18.2
4	4.8	3	14.1	3	25.2	3	26.4	3	27.3
5	6.0	4	18.8	4	33.6	4	35.2	4	36.4
6	7.2	5	23.5	5	42.0	5	44.0	5	45.5
7	8.4	6	28.2	6	50.4	6	52.8	6	54.6
8	9.6	7	32.9	7	58.8	7	61.6	7	63.7
9	10.8	8	37.6	8	67.2	8	70.4	8	72.8
		9	42.3	9	75.6	9	79.2	9	81.9
		51		86		89			
		1	5.1	1	8.6	1	8.9		
		2	10.2	2	17.2	2	17.8		
		3	15.3	3	25.8	3	26.7		
		4	20.4	4	34.4	4	35.6		
		5	25.5	5	43.0	5	44.5		
		6	30.6	6	51.6	6	53.4		
		7	35.7	7	60.2	7	62.3		
		8	40.8	8	68.8	8	71.2		
		9	45.9	9	77.4	9	80.1		

76°

13°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.236273		0.243157		1.029138		4.23239		4.11256		0.971687		**20′** 0″
10	6320	47	3209	52	9150	12	3155	84	1169	87	1675	12	50
20	6367	47	3260	51	9163	13	3071	84	1083	86	1664	11	40
30	6414	47	3312	52	9175	12	2986	85	0996	87	1652	12	30
40	6461	47	3363	51	9187	12	2902	84	0909	87	1641	11	20
50	6508	47	3414	51	9199	12	2818	84	0822	87	1629	12	10
41 0	0.236556	48	0.243466	52	1.029211	12	4.22734	84	4.10736	86	0.971618	11	**19** 0
10	6603	47	3517	51	9223	12	2650	84	0649	87	1607	11	50
20	6650	47	3568	51	9235	12	2565	85	0562	87	1595	12	40
30	6697	47	3620	52	9248	13	2481	84	0476	86	1584	11	30
40	6744	47	3671	51	9260	12	2397	84	0389	87	1572	12	20
50	6791	47	3722	51	9272	12	2313	84	0303	86	1561	11	10
42 0	0.236838	47	0.243774	52	1.029284	12	4.22229	84	4.10216	87	0.971549	12	**18** 0
10	6885	47	3825	51	9296	12	2145	84	0130	86	1538	11	50
20	6932	47	3876	51	9308	12	2061	84	4.10044	86	1526	12	40
30	6979	47	3928	52	9321	13	1978	83	4.09957	87	1515	11	30
40	7027	48	3979	51	9333	12	1894	84	9871	86	1503	12	20
50	7074	47	4031	52	9345	12	1810	84	9785	86	1492	11	10
43 0	0.237121	47	0.244082	51	1.029357	12	4.21726	84	4.09699	86	0.971480	12	**17** 0
10	7168	47	4133	51	9369	12	1642	84	9612	87	1469	11	50
20	7215	47	4185	52	9381	12	1559	83	9526	86	1457	12	40
30	7262	47	4236	51	9394	13	1475	84	9440	86	1446	11	30
40	7309	47	4287	51	9406	12	1391	84	9354	86	1434	12	20
50	7356	47	4339	52	9418	12	1308	83	9268	86	1423	11	10
44 0	0.237403	47	0.244390	51	1.029430	12	4.21224	84	4.09182	86	0.971411	12	**16** 0
10	7450	47	4442	52	9442	12	1141	83	9096	86	1400	11	50
20	7498	48	4493	51	9455	13	1057	84	9010	86	1388	12	40
30	7545	47	4544	51	9467	12	0974	83	8924	86	1377	11	30
40	7592	47	4596	52	9479	12	0890	84	8838	86	1365	12	20
50	7639	47	4647	51	9491	12	0807	83	8752	86	1354	11	10
45 0	0.237686	47	0.244698	51	1.029503	12	4.20723	84	4.08666	86	0.971342	12	**15** 0
10	7733	47	4750	52	9516	13	0640	83	8580	86	1331	11	50
20	7780	47	4801	51	9528	12	0557	83	8495	85	1319	12	40
30	7827	47	4853	52	9540	12	0473	84	8409	86	1307	12	30
40	7874	47	4904	51	9552	12	0390	83	8323	86	1296	11	20
50	7921	47	4955	51	9565	13	0307	83	8238	85	1284	12	10
46 0	0.237968	47	0.245007	52	1.029577	12	4.20224	83	4.08152	86	0.971273	11	**14** 0
10	8016	48	5058	51	9589	12	0141	83	8066	86	1261	12	50
20	8063	47	5110	52	9601	12	4.20058	83	7981	85	1250	11	40
30	8110	47	5161	51	9613	12	4.19974	84	7895	86	1238	12	30
40	8157	47	5212	51	9626	13	9891	83	7810	85	1227	11	20
50	8204	47	5264	52	9638	12	9808	83	7724	86	1215	12	10
47 0	0.238251	47	0.245315	51	1.029650	12	4.19725	83	4.07639	85	0.971204	11	**13** 0
10	8298	47	5367	52	9662	12	9643	82	7554	85	1192	12	50
20	8345	47	5418	51	9675	13	9560	83	7468	86	1181	11	40
30	8392	47	5469	51	9687	12	9477	83	7383	85	1169	12	30
40	8439	47	5521	52	9699	12	9394	83	7298	85	1157	12	20
50	8486	47	5572	51	9711	12	9311	83	7212	86	1146	11	10
48 0	0.238533	47	0.245624	52	1.029724	13	4.19228	83	4.07127	85	0.971134	12	**12** 0
10	8581	48	5675	51	9736	12	9146	82	7042	85	1123	11	50
20	8628	47	5726	51	9748	12	9063	83	6957	85	1111	12	40
30	8675	47	5778	52	9761	13	8980	83	6872	85	1100	11	30
40	8722	47	5829	51	9773	12	8898	82	6787	85	1088	12	20
50	8769	47	5881	52	9785	12	8815	83	6701	86	1076	12	10
49 0	0.238816	47	0.245932	51	1.029797	12	4.18733	82	4.06616	85	0.971065	11	**11** 0
10	8863	47	5983	51	9810	13	8650	83	6531	85	1053	12	50
20	8910	47	6035	52	9822	12	8567	83	6446	85	1042	11	40
30	8957	47	6086	51	9834	12	8485	82	6362	84	1030	12	30
40	9004	47	6138	52	9846	12	8403	82	6277	85	1019	11	20
50	9051	47	6189	51	9859	13	8320	83	6192	85	1007	12	10
50 0	0.239098	47	0.246241	52	1.029871	12	4.18238	82	4.06107	85	0.970995	12	**10** 0
	cos		cotg		cosec		sec		tang		sin		

11	
1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

81	
1	8.1
2	16.2
3	24.3
4	32.4
5	40.5
6	48.6
7	56.7
8	64.8
9	72.9

83	
1	8.3
2	16.6
3	24.9
4	33.2
5	41.5
6	49.8
7	58.1
8	66.4
9	74.7

85	
1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

86	
1	8.6
2	17.2
3	25.8
4	34.4
5	43.0
6	51.6
7	60.2
8	68.8
9	77.4

76°

13°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.239098		0.246241		1.029871		4.18238		4.06107		0.970995		**10′** 0″
10	9145	47	6292	51	9883	12	8156	82	6022	85	0984	11	50
20	9193	48	6343	51	9896	13	8073	83	5937	85	0972	12	40
30	9240	47	6395	52	9908	12	7991	82	5853	84	0961	11	30
40	9287	47	6446	51	9920	12	7909	82	5768	85	0949	12	20
50	9334	47	6498	52	9933	13	7827	82	5683	85	0937	12	10
51 0	0.239381	47	0.246549	51	1.029945	12	4.17744	83	4.05599	84	0.970926	11	**9** 0
10	9428	47	6600	51	9957	12	7662	82	5514	85	0914	12	50
20	9475	47	6652	52	9970	13	7580	82	5430	84	0903	11	40
30	9522	47	6703	51	9982	12	7498	82	5345	85	0891	12	30
40	9569	47	6755	52	1.029994	12	7416	82	5261	84	0879	12	20
50	9616	47	6806	51	1.030006	12	7334	82	5176	85	0868	11	10
52 0	0.239663	47	0.246858	52	1.030019	13	4.17252	82	4.05092	84	0.970856	12	**8** 0
10	9710	47	6909	51	0031	12	7170	82	5007	85	0844	12	50
20	9757	47	6961	52	0043	12	7088	82	4923	84	0833	11	40
30	9804	47	7012	51	0056	13	7006	82	4839	84	0821	12	30
40	9852	48	7063	51	0068	12	6925	81	4754	85	0810	11	20
50	9899	47	7115	52	0080	12	6843	82	4670	84	0798	12	10
53 0	0.239946	47	0.247166	51	1.030093	13	4.16761	82	4.04586	84	0.970786	12	**7** 0
10	0.239993	47	7218	52	0105	12	6679	82	4502	84	0775	11	50
20	0.240040	47	7269	51	0117	12	6598	81	4418	84	0763	12	40
30	0087	47	7321	52	0130	13	6516	82	4333	85	0751	12	30
40	0134	47	7372	51	0142	12	6434	82	4249	84	0740	11	20
50	0181	47	7424	52	0155	13	6353	81	4165	84	0728	12	10
54 0	0.240228	47	0.247475	51	1.030167	12	4.16271	82	4.04081	84	0.970716	12	**6** 0
10	0275	47	7526	51	0179	12	6190	81	3997	84	0705	11	50
20	0322	47	7578	52	0192	13	6108	82	3913	84	0693	12	40
30	0369	47	7629	51	0204	12	6027	81	3829	84	0682	11	30
40	0416	47	7681	52	0216	12	5945	82	3745	84	0670	12	20
50	0463	47	7732	51	0229	13	5864	81	3662	83	0658	12	10
55 0	0.240510	47	0.247784	52	1.030241	12	4.15782	82	4.03578	84	0.970647	11	**5** 0
10	0557	47	7835	51	0253	12	5701	81	3494	84	0635	12	50
20	0605	48	7887	52	0266	13	5620	81	3410	84	0623	12	40
30	0652	47	7938	51	0278	12	5539	81	3326	84	0612	11	30
40	0699	47	7990	52	0291	13	5457	82	3243	83	0600	12	20
50	0746	47	8041	51	0303	12	5376	81	3159	84	0588	12	10
56 0	0.240793	47	0.248092	51	1.030315	12	4.15295	81	4.03076	83	0.970577	11	**4** 0
10	0840	47	8144	52	0328	13	5214	81	2992	84	0565	12	50
20	0887	47	8195	51	0340	12	5133	81	2908	84	0553	12	40
30	0934	47	8247	52	0353	13	5052	81	2825	83	0542	11	30
40	0981	47	8298	51	0365	12	4971	81	2741	84	0530	12	20
50	1028	47	8350	52	0377	12	4890	81	2658	83	0518	12	10
57 0	0.241075	47	0.248401	51	1.030390	13	4.14809	81	4.02574	84	0.970506	12	**3** 0
10	1122	47	8453	52	0402	12	4728	81	2491	83	0495	11	50
20	1169	47	8504	51	0415	13	4647	81	2408	83	0483	12	40
30	1216	47	8556	52	0427	12	4566	81	2324	84	0471	12	30
40	1263	47	8607	51	0439	12	4485	81	2241	83	0460	11	20
50	1310	47	8659	52	0452	13	4404	81	2158	83	0448	12	10
58 0	0.241357	47	0.248710	51	1.030464	12	4.14323	81	4.02074	84	0.970436	12	**2** 0
10	1404	47	8762	52	0477	13	4243	80	1991	83	0425	11	50
20	1451	47	8813	51	0489	12	4162	81	1908	83	0413	12	40
30	1499	48	8865	52	0502	13	4081	81	1825	83	0401	12	30
40	1546	47	8916	51	0514	12	4001	80	1742	83	0389	12	20
50	1593	47	8968	52	0526	12	3920	81	1659	83	0378	11	10
59 0	0.241640	47	0.249019	51	1.030539	13	4.13839	81	4.01576	83	0.970366	12	**1** 0
10	1687	47	9071	52	0551	12	3759	80	1493	83	0354	12	50
20	1734	47	9122	51	0564	13	3678	81	1410	83	0343	11	40
30	1781	47	9174	52	0576	12	3598	80	1327	83	0331	12	30
40	1828	47	9225	51	0589	13	3517	81	1244	83	0319	12	20
50	1875	47	9277	52	0601	12	3437	80	1161	83	0307	12	10
60 0	0.241922	47	0.249328	51	1.030614	13	4.13357	80	4.01078	83	0.970296	11	**0** 0
	cos		cotg		cosec		sec		tang		sin		

12	
1	1.2
2	2.4
3	3.6
4	4.8
5	6.0
6	7.2
7	8.4
8	9.6
9	10.8

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

80	
1	8.0
2	16.0
3	24.0
4	32.0
5	40.0
6	48.0
7	56.0
8	64.0
9	72.0

82	
1	8.2
2	16.4
3	24.6
4	32.8
5	41.0
6	49.2
7	57.4
8	65.6
9	73.8

84	
1	8.4
2	16.8
3	25.2
4	33.6
5	42.0
6	50.4
7	58.8
8	67.2
9	75.6

85	
1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

87	
1	8.7
2	17.4
3	26.1
4	34.8
5	43.5
6	52.2
7	60.9
8	69.6
9	78.3

76°

14°

0′ 0″	sin		tang		sec		cosec		cotg		cos		60′ 0″
	0.241922		0.249328		1.030614		4.13357		4.01078		0.970296		
10	1969	47	9379	51	0626	12	3276	81	0995	83	0284	12	50
20	2016	47	9431	52	0639	13	3196	80	0912	83	0272	12	40
30	2063	47	9482	51	0651	12	3116	80	0830	82	0261	11	30
40	2110	47	9534	52	0663	12	3035	81	0747	83	0249	12	20
50	2157	47	9585	51	0676	13	2955	80	0664	83	0237	12	10
1 0	0.242204	47	0.249637	52	1.030688	12	4.12875	80	4.00582	82	0.970225	12	59 0
10	2251	47	9688	51	0701	13	2795	80	0499	83	0214	11	50
20	2298	47	9740	52	0713	12	2715	80	0416	83	0202	12	40
30	2345	47	9792	52	0726	13	2634	81	0334	82	0190	12	30
40	2392	47	9843	51	0738	12	2554	80	0251	83	0178	12	20
50	2439	47	9895	52	0751	13	2474	80	0169	82	0167	11	10
2 0	0.242486	47	0.249946	51	1.030763	12	4.12394	80	4.00086	83	0.970155	12	58 0
10	2533	47	0.249998	52	0776	13	2314	80	4.00004	82	0143	12	50
20	2580	47	0.250049	51	0788	12	2234	80	3.99922	82	0131	12	40
30	2627	47	0101	52	0801	13	2155	79	9839	83	0120	11	30
40	2674	47	0152	51	0813	12	2075	80	9757	82	0108	12	20
50	2722	48	0204	52	0826	13	1995	80	9675	82	0096	12	10
3 0	0.242769	47	0.250255	51	1.030838	12	4.11915	80	3.99592	83	0.970084	12	57 0
10	2816	47	0307	52	0851	13	1835	80	9510	82	0072	12	50
20	2863	47	0358	51	0863	12	1755	80	9428	82	0061	11	40
30	2910	47	0410	52	0876	13	1676	79	9346	82	0049	12	30
40	2957	47	0461	51	0888	12	1596	80	9263	83	0037	12	20
50	3004	47	0513	52	0901	13	1516	80	9181	82	0025	12	10
4 0	0.243051	47	0.250564	51	1.030913	12	4.11437	79	3.99099	82	0.970014	11	56 0
10	3098	47	0616	52	0926	13	1357	80	9017	82	0.970002	12	50
20	3145	47	0667	51	0938	12	1278	79	8935	82	0.969990	12	40
30	3192	47	0719	52	0951	13	1198	80	8853	82	9978	12	30
40	3239	47	0770	51	0964	13	1119	79	8771	82	9966	12	20
50	3286	47	0822	52	0976	12	1039	80	8689	82	9955	11	10
5 0	0.243333	47	0.250873	51	1.030989	13	4.10960	79	3.98607	82	0.969943	12	55 0
10	3380	47	0925	52	1001	12	0880	80	8526	81	9931	12	50
20	3427	47	0976	51	1014	13	0801	79	8444	82	9919	12	40
30	3474	47	1028	52	1026	12	0722	79	8362	82	9907	12	30
40	3521	47	1080	52	1039	13	0642	80	8280	82	9896	11	20
50	3568	47	1131	51	1051	12	0563	79	8198	82	9884	12	10
6 0	0.243615	47	0.251183	52	1.031064	13	4.10484	79	3.98117	81	0.969872	12	54 0
10	3662	47	1234	51	1076	12	0405	79	8035	82	9860	12	50
20	3709	47	1286	52	1089	13	0325	80	7953	82	9848	12	40
30	3756	47	1337	51	1102	13	0246	79	7872	81	9837	11	30
40	3803	47	1389	52	1114	12	0167	79	7790	82	9825	12	20
50	3850	47	1440	51	1127	13	0088	79	7709	81	9813	12	10
7 0	0.243897	47	0.251492	52	1.031139	12	4.10009	79	3.97627	82	0.969801	12	53 0
10	3944	47	1543	51	1152	13	4.09930	79	7546	81	9789	12	50
20	3991	47	1595	52	1164	12	9851	79	7464	82	9777	12	40
30	4038	47	1647	52	1177	13	9772	79	7383	81	9766	11	30
40	4085	47	1698	51	1190	13	9693	79	7301	82	9754	12	20
50	4132	47	1750	52	1202	12	9614	79	7220	81	9742	12	10
8 0	0.244179	47	0.251801	51	1.031215	13	4.09535	79	3.97139	81	0.969730	12	52 0
10	4226	47	1853	52	1227	12	9456	79	7057	82	9718	12	50
20	4273	47	1904	51	1240	13	9378	78	6976	81	9706	12	40
30	4320	47	1956	52	1253	13	9299	79	6895	81	9695	11	30
40	4367	47	2007	51	1265	12	9220	79	6814	81	9683	12	20
50	4414	47	2059	52	1278	13	9141	79	6733	81	9671	12	10
9 0	0.244461	47	0.252111	52	1.031290	12	4.09063	78	3.96651	82	0.969659	12	51 0
10	4508	47	2162	51	1303	13	8984	79	6570	81	9647	12	50
20	4555	47	2214	52	1316	13	8905	79	6489	81	9635	12	40
30	4602	47	2265	51	1328	12	8827	78	6408	81	9623	12	30
40	4649	47	2317	52	1341	13	8748	79	6327	81	9612	11	20
50	4696	47	2368	51	1353	12	8670	78	6246	81	9600	12	10
10 0	0.244743	47	0.252420	52	1.031366	13	4.08591	79	3.96165	81	0.969588	12	50 0
	cos		cotg		cosec		sec		tang		sin		

11

1	1.1
2	2.2
3	3.3
4	4.4
5	5.5
6	6.6
7	7.7
8	8.8
9	9.9

13

1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

52

1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

77

1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

79

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2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

81

1	8.1
2	16.2
3	24.3
4	32.4
5	40.5
6	48.6
7	56.7
8	64.8
9	72.9

82

1	8.2
2	16.4
3	24.6
4	32.8
5	41.0
6	49.2
7	57.4
8	65.6
9	73.8

75°

14°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.244743		0.252420		1.031366		4.08591		3.96165		0.969588		**50′** 0″
10	4790	47	2472	52	1379	13	8513	78	6084	81	9576	12	50
20	4837	47	2523	51	1391	12	8434	79	6003	81	9564	12	40
30	4884	47	2575	52	1404	13	8356	78	5923	80	9552	12	30
40	4931	47	2626	51	1417	13	8278	78	5842	81	9540	12	20
50	4978	47	2678	52	1429	12	8199	79	5761	81	9529	11	10
11 0	0.245025	47	0.252729	51	1.031442	13	4.08121	78	3.95680	81	0.969517	12	**49** 0
10	5072	47	2781	52	1454	12	8043	78	5599	81	9505	12	50
20	5119	47	2833	52	1467	13	7964	79	5519	80	9493	12	40
30	5166	47	2884	51	1480	13	7886	78	5438	81	9481	12	30
40	5213	47	2936	52	1492	12	7808	78	5357	81	9469	12	20
50	5260	47	2987	51	1505	13	7730	78	5277	80	9457	12	10
12 0	0.245307	47	0.253039	52	1.031518	13	4.07652	78	3.95196	81	0.969445	12	**48** 0
10	5354	47	3090	51	1530	12	7574	78	5116	80	9433	12	50
20	5401	47	3142	52	1543	13	7496	78	5035	81	9422	11	40
30	5448	47	3194	52	1556	13	7418	78	4955	80	9410	12	30
40	5495	47	3245	51	1568	12	7340	78	4874	81	9398	12	20
50	5542	47	3297	52	1581	13	7262	78	4794	80	9386	12	10
13 0	0.245589	47	0.253348	51	1.031594	13	4.07184	78	3.94713	81	0.969374	12	**47** 0
10	5636	47	3400	52	1606	12	7106	78	4633	80	9362	12	50
20	5683	47	3452	52	1619	13	7028	78	4553	80	9350	12	40
30	5730	47	3503	51	1632	13	6950	78	4472	81	9338	12	30
40	5777	47	3555	52	1644	12	6872	78	4392	80	9326	12	20
50	5824	47	3606	51	1657	13	6795	77	4312	80	9314	12	10
14 0	0.245871	47	0.253658	52	1.031670	13	4.06717	78	3.94232	80	0.969302	12	**46** 0
10	5918	47	3710	52	1682	12	6639	78	4151	81	9291	11	50
20	5965	47	3761	51	1695	13	6561	78	4071	80	9279	12	40
30	6012	47	3813	52	1708	13	6484	77	3991	80	9267	12	30
40	6059	47	3864	51	1720	12	6406	78	3911	80	9255	12	20
50	6106	47	3916	52	1733	13	6328	78	3831	80	9243	12	10
15 0	0.246153	47	0.253968	52	1.031746	13	4.06251	77	3.93751	80	0.969231	12	**45** 0
10	6200	47	4019	51	1759	13	6173	78	3671	80	9219	12	50
20	6247	47	4071	52	1771	12	6096	77	3591	80	9207	12	40
30	6294	47	4122	51	1784	13	6018	78	3511	80	9195	12	30
40	6341	47	4174	52	1797	13	5941	77	3431	80	9183	12	20
50	6388	47	4226	52	1809	12	5864	77	3351	80	9171	12	10
16 0	0.246435	47	0.254277	51	1.031822	13	4.05786	78	3.93271	80	0.969159	12	**44** 0
10	6482	47	4329	52	1835	13	5709	77	3192	79	9147	12	50
20	6529	47	4381	52	1848	13	5631	78	3112	80	9135	12	40
30	6576	47	4432	51	1860	12	5554	77	3032	80	9123	12	30
40	6623	47	4484	52	1873	13	5477	77	2952	80	9111	12	20
50	6670	47	4535	51	1886	13	5400	77	2873	79	9099	12	10
17 0	0.246717	47	0.254587	52	1.031899	13	4.05322	78	3.92793	80	0.969088	11	**43** 0
10	6764	47	4639	52	1911	12	5245	77	2713	80	9076	12	50
20	6811	47	4690	51	1924	13	5168	77	2634	79	9064	12	40
30	6858	47	4742	52	1937	13	5091	77	2554	80	9052	12	30
40	6905	47	4794	52	1949	12	5014	77	2475	79	9040	12	20
50	6952	47	4845	51	1962	13	4937	77	2395	80	9028	12	10
18 0	0.246999	47	0.254897	52	1.031975	13	4.04860	77	3.92316	79	0.969016	12	**42** 0
10	7046	47	4948	51	1988	13	4783	77	2236	80	9004	12	50
20	7093	47	5000	52	2001	13	4706	77	2157	79	8992	12	40
30	7140	47	5052	52	2013	12	4629	77	2077	80	8980	12	30
40	7187	47	5103	51	2026	13	4552	77	1998	79	8968	12	20
50	7234	47	5155	52	2039	13	4475	77	1919	79	8956	12	10
19 0	0.247281	47	0.255207	52	1.032052	13	4.04398	77	3.91839	80	0.968944	12	**41** 0
10	7328	47	5258	51	2064	12	4322	76	1760	79	8932	12	50
20	7375	47	5310	52	2077	13	4245	77	1681	79	8920	12	40
30	7422	47	5362	52	2090	13	4168	77	1602	79	8908	12	30
40	7469	47	5413	51	2103	13	4091	77	1522	80	8896	12	20
50	7516	47	5465	52	2115	12	4015	76	1443	79	8884	12	10
20 0	0.247563	47	0.255516	51	1.032128	13	4.03938	77	3.91364	79	0.968872	12	**40** 0
	cos		cotg		cosec		sec		tang		sin		

12	
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2	2.4
3	3.6
4	4.8
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6	7.2
7	8.4
8	9.6
9	10.8

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

78	
1	7.8
2	15.6
3	23.4
4	31.2
5	39.0
6	46.8
7	54.6
8	62.4
9	70.2

80	
1	8.0
2	16.0
3	24.0
4	32.0
5	40.0
6	48.0
7	56.0
8	64.0
9	72.0

81	
1	8.1
2	16.2
3	24.3
4	32.4
5	40.5
6	48.6
7	56.7
8	64.8
9	72.9

83	
1	8.3
2	16.6
3	24.9
4	33.2
5	41.5
6	49.8
7	58.1
8	66.4
9	74.7

75°

14°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.247563		0.255516		1.032128		4.03938		3.91364		0.968872		**40′** 0″
10	7610	47	5568	52	2141	13	3861	77	1285	79	8860	12	50
20	7657	47	5620	52	2154	13	3785	76	1206	79	8848	12	40
30	7704	47	5671	51	2167	13	3708	77	1127	79	8836	12	30
40	7751	47	5723	52	2179	12	3632	76	1048	79	8824	12	20
50	7798	47	5775	52	2192	13	3555	77	0969	79	8812	12	10
21 0	0.247845	47	0.255826	51	1.032205	13	4.03479	76	3.90890	79	0.968800	12	**39** 0
10	7892	47	5878	52	2218	13	3402	77	0811	79	8788	12	50
20	7938	46	5930	52	2231	13	3326	76	0732	79	8776	12	40
30	7985	47	5981	51	2243	12	3249	77	0653	79	8764	12	30
40	8032	47	6033	52	2256	13	3173	76	0575	78	8752	12	20
50	8079	47	6085	52	2269	13	3097	76	0496	79	8740	12	10
22 0	0.248126	47	0.256136	51	1.032282	13	4.03020	77	3.90417	79	0.968728	12	**38** 0
10	8173	47	6188	52	2295	13	2944	76	0338	79	8716	12	50
20	8220	47	6240	52	2307	12	2868	76	0260	78	8704	12	40
30	8267	47	6291	51	2320	13	2792	76	0181	79	8692	12	30
40	8314	47	6343	52	2333	13	2716	76	0102	79	8680	12	20
50	8361	47	6395	52	2346	13	2639	77	3.90024	78	8668	12	10
23 0	0.248408	47	0.256446	51	1.032359	13	4.02563	76	3.89945	79	0.968655	13	**37** 0
10	8455	47	6498	52	2372	13	2487	76	9867	78	8643	12	50
20	8502	47	6550	52	2384	12	2411	76	9788	79	8631	12	40
30	8549	47	6601	51	2397	13	2335	76	9710	78	8619	12	30
40	8596	47	6653	52	2410	13	2259	76	9631	79	8607	12	20
50	8643	47	6705	52	2423	13	2183	76	9553	78	8595	12	10
24 0	0.248690	47	0.256756	51	1.032436	13	4.02107	76	3.89474	79	0.968583	12	**36** 0
10	8737	47	6808	52	2449	13	2031	76	9396	78	8571	12	50
20	8784	47	6860	52	2462	13	1955	76	9318	78	8559	12	40
30	8831	47	6911	51	2474	12	1880	75	9239	79	8547	12	30
40	8878	47	6963	52	2487	13	1804	76	9161	78	8535	12	20
50	8925	47	7015	52	2500	13	1728	76	9083	78	8523	12	10
25 0	0.248972	47	0.257066	51	1.032513	13	4.01652	76	3.89004	79	0.968511	12	**35** 0
10	9019	47	7118	52	2526	13	1576	76	8926	78	8499	12	50
20	9066	47	7170	52	2539	13	1501	75	8848	78	8487	12	40
30	9112	46	7222	52	2552	13	1425	76	8770	78	8475	12	30
40	9159	47	7273	51	2565	13	1349	76	8692	78	8462	13	20
50	9206	47	7325	52	2577	12	1274	75	8614	78	8450	12	10
26 0	0.249253	47	0.257377	52	1.032590	13	4.01198	76	3.88536	78	0.968438	12	**34** 0
10	9300	47	7428	51	2603	13	1123	75	8458	78	8426	12	50
20	9347	47	7480	52	2616	13	1047	76	8380	78	8414	12	40
30	9394	47	7532	52	2629	13	0972	75	8302	78	8402	12	30
40	9441	47	7583	51	2642	13	0896	76	8224	78	8390	12	20
50	9488	47	7635	52	2655	13	0821	75	8146	78	8378	12	10
27 0	0.249535	47	0.257687	52	1.032668	13	4.00745	76	3.88068	78	0.968366	12	**33** 0
10	9582	47	7738	51	2681	13	0670	75	7990	78	8354	12	50
20	9629	47	7790	52	2693	12	0595	75	7912	78	8342	12	40
30	9676	47	7842	52	2706	13	0519	76	7835	77	8329	13	30
40	9723	47	7894	52	2719	13	0444	75	7757	78	8317	12	20
50	9770	47	7945	51	2732	13	0369	75	7679	78	8305	12	10
28 0	0.249817	47	0.257997	52	1.032745	13	4.00293	76	3.87601	78	0.968293	12	**32** 0
10	9864	47	8049	52	2758	13	0218	75	7524	77	8281	12	50
20	9911	47	8100	51	2771	13	0143	75	7446	78	8269	12	40
30	0.249958	47	8152	52	2784	13	4.00068	75	7369	77	8257	12	30
40	0.250004	46	8204	52	2797	13	3.99993	75	7291	78	8245	12	20
50	0051	47	8256	52	2810	13	9918	75	7213	78	8233	12	10
29 0	0.250098	47	0.258307	51	1.032823	13	3.99843	75	3.87136	77	0.968220	13	**31** 0
10	0145	47	8359	52	2836	13	9768	75	7058	78	8208	12	50
20	0192	47	8411	52	2849	13	9693	75	6981	77	8196	12	40
30	0239	47	8462	51	2861	12	9618	75	6903	78	8184	12	30
40	0286	47	8514	52	2874	13	9543	75	6826	77	8172	12	20
50	0333	47	8566	52	2887	13	9468	75	6749	77	8160	12	10
30 0	0.250380	47	0.258618	52	1.032900	13	3.99393	75	3.86671	78	0.968148	12	**30** 0
	cos		cotg		cosec		sec		tang		sin		

12	
1	1.2
2	2.4
3	3.6
4	4.8
5	6.0
6	7.2
7	8.4
8	9.6
9	10.8

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

74	
1	7.4
2	14.8
3	22.2
4	29.6
5	37.0
6	44.4
7	51.8
8	59.2
9	66.6

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

78	
1	7.8
2	15.6
3	23.4
4	31.2
5	39.0
6	46.8
7	54.6
8	62.4
9	70.2

75°

14°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.250380		0.258618		1.032900		3.99393		3.86671		0.968148		**30′** 0″
10	0427	47	8669	51	2913	13	9318	75	6594	77	8136	12	50
20	0474	47	8721	52	2926	13	9243	75	6517	77	8123	13	40
30	0521	47	8773	52	2939	13	9168	75	6439	78	8111	12	30
40	0568	47	8824	51	2952	13	9094	74	6362	77	8099	12	20
50	0615	47	8876	52	2965	13	9019	75	6285	77	8087	12	10
31 0	0.250662	47	0.258928	52	1.032978	13	3.98944	75	3.86208	77	0.968075	12	**29** 0
10	0709	47	8980	52	2991	13	8870	74	6131	77	8063	12	50
20	0755	46	9031	51	3004	13	8795	75	6054	77	8050	13	40
30	0802	47	9083	52	3017	13	8720	75	5976	78	8038	12	30
40	0849	47	9135	52	3030	13	8646	74	5899	77	8026	12	20
50	0896	47	9187	52	3043	13	8571	75	5822	77	8014	12	10
32 0	0.250943	47	0.259238	51	1.033056	13	3.98497	74	3.85745	77	0.968002	12	**28** 0
10	0990	47	9290	52	3069	13	8422	75	5668	77	7990	12	50
20	1037	47	9342	52	3082	13	8348	74	5591	77	7977	13	40
30	1084	47	9394	52	3095	13	8273	75	5515	76	7965	12	30
40	1131	47	9445	51	3108	13	8199	74	5438	77	7953	12	20
50	1178	47	9497	52	3121	13	8124	75	5361	77	7941	12	10
33 0	0.251225	47	0.259549	52	1.033134	13	3.98050	74	3.85284	77	0.967929	12	**27** 0
10	1272	47	9601	52	3147	13	7976	74	5207	77	7917	12	50
20	1319	47	9652	51	3160	13	7901	75	5130	77	7904	13	40
30	1366	47	9704	52	3173	13	7827	74	5054	76	7892	12	30
40	1412	46	9756	52	3186	13	7753	74	4977	77	7880	12	20
50	1459	47	9808	52	3199	13	7679	74	4900	77	7868	12	10
34 0	0.251506	47	0.259859	51	1.033212	13	3.97604	75	3.84824	76	0.967856	12	**26** 0
10	1553	47	9911	52	3225	13	7530	74	4747	77	7843	13	50
20	1600	47	0.259963	52	3238	13	7456	74	4670	77	7831	12	40
30	1647	47	0.260015	52	3251	13	7382	74	4594	76	7819	12	30
40	1694	47	0066	51	3264	13	7308	74	4517	77	7807	12	20
50	1741	47	0118	52	3277	13	7234	74	4441	76	7795	12	10
35 0	0.251788	47	0.260170	52	1.033290	13	3.97160	74	3.84364	77	0.967782	13	**25** 0
10	1835	47	0222	52	3303	13	7086	74	4288	76	7770	12	50
20	1882	47	0273	51	3316	13	7012	74	4211	77	7758	12	40
30	1929	47	0325	52	3329	13	6938	74	4135	76	7746	12	30
40	1976	47	0377	52	3342	13	6864	74	4059	76	7734	12	20
50	2022	46	0429	52	3355	13	6790	74	3982	77	7721	13	10
36 0	0.252069	47	0.260480	51	1.033368	13	3.96716	74	3.83906	76	0.967709	12	**24** 0
10	2116	47	0532	52	3381	13	6642	74	3830	76	7697	12	50
20	2163	47	0584	52	3394	13	6569	73	3753	77	7685	12	40
30	2210	47	0636	52	3407	13	6495	74	3677	76	7672	13	30
40	2257	47	0688	52	3421	14	6421	74	3601	76	7660	12	20
50	2304	47	0739	51	3434	13	6347	74	3525	76	7648	12	10
37 0	0.252351	47	0.260791	52	1.033447	13	3.96274	73	3.83449	76	0.967636	12	**23** 0
10	2398	47	0843	52	3460	13	6200	74	3372	77	7624	12	50
20	2445	47	0895	52	3473	13	6126	74	3296	76	7611	13	40
30	2492	47	0946	51	3486	13	6053	73	3220	76	7599	12	30
40	2538	46	0998	52	3499	13	5979	74	3144	76	7587	12	20
50	2585	47	1050	52	3512	13	5906	73	3068	76	7575	12	10
38 0	0.252632	47	0.261102	52	1.033525	13	3.95832	74	3.82992	76	0.967562	13	**22** 0
10	2679	47	1154	52	3538	13	5759	73	2916	76	7550	12	50
20	2726	47	1205	51	3551	13	5685	74	2840	76	7538	12	40
30	2773	47	1257	52	3564	13	5612	73	2765	75	7526	12	30
40	2820	47	1309	52	3577	13	5538	74	2689	76	7513	13	20
50	2867	47	1361	52	3591	14	5465	73	2613	76	7501	12	10
39 0	0.252914	47	0.261413	52	1.033604	13	3.95392	73	3.82537	76	0.967489	12	**21** 0
10	2961	47	1464	51	3617	13	5318	74	2461	76	7477	12	50
20	3008	47	1516	52	3630	13	5245	73	2386	75	7464	13	40
30	3054	46	1568	52	3643	13	5172	73	2310	76	7452	12	30
40	3101	47	1620	52	3656	13	5099	73	2234	76	7440	12	20
50	3148	47	1672	52	3669	13	5025	74	2158	76	7427	13	10
40 0	0.253195	47	0.261723	51	1.033682	13	3.94952	73	3.82083	75	0.967415	12	**20** 0
	cos		cotg		cosec		sec		tang		sin		

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

73	
1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

75	
1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

77	
1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

79	
1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

75°

14°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.253195		0.261723		1.033682		3.94952		3.82083		0.967415		**20′** 0″
10	3242	47	1775	52	3695	13	4879	73	2007	76	7403	12	50
20	3289	47	1827	52	3709	14	4806	73	1932	75	7391	12	40
30	3336	47	1879	52	3722	13	4733	73	1856	76	7378	13	30
40	3383	47	1931	52	3735	13	4660	73	1781	75	7366	12	20
50	3430	47	1982	51	3748	13	4587	73	1705	76	7354	12	10
41 0	0.253477	47	0.262034	52	1.033761	13	3.94514	73	3.81630	75	0.967342	12	**19** 0
10	3523	46	2086	52	3774	13	4441	73	1554	76	7329	13	50
20	3570	47	2138	52	3787	13	4368	73	1479	75	7317	12	40
30	3617	47	2190	52	3800	13	4295	73	1403	76	7305	12	30
40	3664	47	2241	51	3814	14	4222	73	1328	75	7292	13	20
50	3711	47	2293	52	3827	13	4149	73	1253	75	7280	12	10
42 0	0.253758	47	0.262345	52	1.033840	13	3.94076	73	3.81177	76	0.967268	12	**18** 0
10	3805	47	2397	52	3853	13	4004	72	1102	75	7255	13	50
20	3852	47	2449	52	3866	13	3931	73	1027	75	7243	12	40
30	3899	47	2501	52	3879	13	3858	73	0952	75	7231	12	30
40	3946	47	2552	51	3893	14	3785	73	0876	76	7219	12	20
50	3992	46	2604	52	3906	13	3713	72	0801	75	7206	13	10
43 0	0.254039	47	0.262656	52	1.033919	13	3.93640	73	3.80726	75	0.967194	12	**17** 0
10	4086	47	2708	52	3932	13	3567	73	0651	75	7182	12	50
20	4133	47	2760	52	3945	13	3495	72	0576	75	7169	13	40
30	4180	47	2812	52	3958	13	3422	73	0501	75	7157	12	30
40	4227	47	2863	51	3972	14	3349	73	0426	75	7145	12	20
50	4274	47	2915	52	3985	13	3277	72	0351	75	7132	13	10
44 0	0.254321	47	0.262967	52	1.033998	13	3.93204	73	3.80276	75	0.967120	12	**16** 0
10	4368	47	3019	52	4011	13	3132	72	0201	75	7108	12	50
20	4414	46	3071	52	4024	13	3059	73	0126	75	7095	13	40
30	4461	47	3123	52	4037	13	2987	72	3.80051	75	7083	12	30
40	4508	47	3174	51	4051	14	2915	72	3.79976	75	7071	12	20
50	4555	47	3226	52	4064	13	2842	73	9901	75	7058	13	10
45 0	0.254602	47	0.263278	52	1.034077	13	3.92770	72	3.79827	74	0.967046	12	**15** 0
10	4649	47	3330	52	4090	13	2698	72	9752	75	7034	12	50
20	4696	47	3382	52	4103	13	2625	73	9677	75	7021	13	40
30	4743	47	3434	52	4117	14	2553	72	9602	75	7009	12	30
40	4789	46	3485	51	4130	13	2481	72	9528	74	6997	12	20
50	4836	47	3537	52	4143	13	2409	72	9453	75	6984	13	10
46 0	0.254883	47	0.263589	52	1.034156	13	3.92337	72	3.79378	75	0.966972	12	**14** 0
10	4930	47	3641	52	4169	13	2264	73	9304	74	6959	13	50
20	4977	47	3693	52	4183	14	2192	72	9229	75	6947	12	40
30	5024	47	3745	52	4196	13	2120	72	9155	74	6935	12	30
40	5071	47	3797	52	4209	13	2048	72	9080	75	6922	13	20
50	5118	47	3848	51	4222	13	1976	72	9006	74	6910	12	10
47 0	0.255165	47	0.263900	52	1.034236	14	3.91904	72	3.78931	75	0.966898	12	**13** 0
10	5211	46	3952	52	4249	13	1832	72	8857	74	6885	13	50
20	5258	47	4004	52	4262	13	1760	72	8782	75	6873	12	40
30	5305	47	4056	52	4275	13	1688	72	8708	74	6861	12	30
40	5352	47	4108	52	4289	14	1616	72	8633	75	6848	13	20
50	5399	47	4160	52	4302	13	1544	72	8559	74	6836	12	10
48 0	0.255446	47	0.264211	51	1.034315	13	3.91473	71	3.78485	74	0.966823	13	**12** 0
10	5493	47	4263	52	4328	13	1401	72	8411	74	6811	12	50
20	5540	47	4315	52	4342	14	1329	72	8336	75	6799	12	40
30	5586	46	4367	52	4355	13	1257	72	8262	74	6786	13	30
40	5633	47	4419	52	4368	13	1185	72	8188	74	6774	12	20
50	5680	47	4471	52	4381	13	1114	71	8114	74	6761	13	10
49 0	0.255727	47	0.264523	52	1.034395	14	3.91042	72	3.78040	74	0.966749	12	**11** 0
10	5774	47	4574	51	4408	13	0970	72	7965	75	6737	12	50
20	5821	47	4626	52	4421	13	0899	71	7891	74	6724	13	40
30	5868	47	4678	52	4434	13	0827	72	7817	74	6712	12	30
40	5914	46	4730	52	4448	14	0756	71	7743	74	6699	13	20
50	5961	47	4782	52	4461	13	0684	72	7669	74	6687	12	10
50 0	0.256008	47	0.264834	52	1.034474	13	3.90613	71	3.77595	74	0.966675	12	**10** 0
	cos		cotg		cosec		sec		tang		sin		

12	
1	1.2
2	2.4
3	3.6
4	4.8
5	6.0
6	7.2
7	8.4
8	9.6
9	10.8

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

71	
1	7.1
2	14.2
3	21.3
4	28.4
5	35.5
6	42.6
7	49.7
8	56.8
9	63.9

73	
1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

75	
1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

75°

14°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.256008		0.264834		1.034474		3.90613		3.77595		0.966675		**10′** 0″
10	6055	47	4886	52	4488	14	0541	72	7521	74	6662	13	50
20	6102	47	4938	52	4501	13	0470	71	7447	74	6650	12	40
30	6149	47	4990	52	4514	13	0398	72	7373	74	6637	13	30
40	6196	47	5041	51	4527	13	0327	71	7300	73	6625	12	20
50	6243	47	5093	52	4541	14	0255	72	7226	74	6613	12	10
51 0	0.256289	46	0.265145	52	1.034554	13	3.90184	71	3.77152	74	0.966600	13	**9** 0
10	6336	47	5197	52	4567	13	0113	71	7078	74	6588	12	50
20	6383	47	5249	52	4581	14	3.90041	72	7004	74	6575	13	40
30	6430	47	5301	52	4594	13	3.89970	71	6931	73	6563	12	30
40	6477	47	5353	52	4607	13	9899	71	6857	74	6550	13	20
50	6524	47	5405	52	4621	14	9828	71	6783	74	6538	12	10
52 0	0.256571	47	0.265457	52	1.034634	13	3.89756	72	3.76709	74	0.966526	12	**8** 0
10	6617	46	5508	51	4647	13	9685	71	6636	73	6513	13	50
20	6664	47	5560	52	4660	13	9614	71	6562	74	6501	12	40
30	6711	47	5612	52	4674	14	9543	71	6489	73	6488	13	30
40	6758	47	5664	52	4687	13	9472	71	6415	74	6476	12	20
50	6805	47	5716	52	4700	13	9401	71	6342	73	6463	13	10
53 0	0.256852	47	0.265768	52	1.034714	14	3.89330	71	3.76268	74	0.966451	12	**7** 0
10	6899	47	5820	52	4727	13	9259	71	6195	73	6438	13	50
20	6945	46	5872	52	4740	13	9188	71	6121	74	6426	12	40
30	6992	47	5924	52	4754	14	9117	71	6048	73	6413	13	30
40	7039	47	5976	52	4767	13	9046	71	5974	74	6401	12	20
50	7086	47	6028	52	4780	13	8975	71	5901	73	6389	12	10
54 0	0.257133	47	0.266079	51	1.034794	14	3.88904	71	3.75828	73	0.966376	13	**6** 0
10	7180	47	6131	52	4807	13	8833	71	5754	74	6364	12	50
20	7226	46	6183	52	4821	14	8762	71	5681	73	6351	13	40
30	7273	47	6235	52	4834	13	8692	70	5608	73	6339	12	30
40	7320	47	6287	52	4847	13	8621	71	5535	73	6326	13	20
50	7367	47	6339	52	4861	14	8550	71	5461	74	6314	12	10
55 0	0.257414	47	0.266391	52	1.034874	13	3.88479	71	3.75388	73	0.966301	13	**5** 0
10	7461	47	6443	52	4887	13	8409	70	5315	73	6289	12	50
20	7508	47	6495	52	4901	14	8338	71	5242	73	6276	13	40
30	7554	46	6547	52	4914	13	8267	71	5169	73	6264	12	30
40	7601	47	6599	52	4927	13	8197	70	5096	73	6251	13	20
50	7648	47	6651	52	4941	14	8126	71	5023	73	6239	12	10
56 0	0.257695	47	0.266702	51	1.034954	13	3.88056	70	3.74950	73	0.966226	13	**4** 0
10	7742	47	6754	52	4968	14	7985	71	4877	73	6214	12	50
20	7789	47	6806	52	4981	13	7915	70	4804	73	6201	13	40
30	7835	46	6858	52	4994	13	7844	71	4731	73	6189	12	30
40	7882	47	6910	52	5008	14	7774	70	4658	73	6176	13	20
50	7929	47	6962	52	5021	13	7703	71	4585	73	6164	12	10
57 0	0.257976	47	0.267014	52	1.035035	14	3.87633	70	3.74512	73	0.966151	13	**3** 0
10	8023	47	7066	52	5048	13	7563	70	4439	73	6139	12	50
20	8070	47	7118	52	5061	13	7492	71	4366	73	6126	13	40
30	8117	47	7170	52	5075	14	7422	70	4294	72	6114	12	30
40	8163	46	7222	52	5088	13	7352	70	4221	73	6101	13	20
50	8210	47	7274	52	5102	14	7281	71	4148	73	6089	12	10
58 0	0.258257	47	0.267326	52	1.035115	13	3.87211	70	3.74075	73	0.966076	13	**2** 0
10	8304	47	7378	52	5128	13	7141	70	4003	72	6064	12	50
20	8351	47	7430	52	5142	14	7071	70	3930	73	6051	13	40
30	8398	47	7482	52	5155	13	7001	70	3858	72	6039	12	30
40	8444	46	7534	52	5169	14	6930	71	3785	73	6026	13	20
50	8491	47	7585	51	5182	13	6860	70	3712	73	6014	12	10
59 0	0.258538	47	0.267637	52	1.035196	14	3.86790	70	3.73640	72	0.966001	13	**1** 0
10	8585	47	7689	52	5209	13	6720	70	3567	73	5989	12	50
20	8632	47	7741	52	5222	13	6650	70	3495	72	5976	13	40
30	8679	47	7793	52	5236	14	6580	70	3422	73	5963	13	30
40	8725	46	7845	52	5249	13	6510	70	3350	72	5951	12	20
50	8772	47	7897	52	5263	14	6440	70	3277	73	5938	13	10
60 0	0.258819	47	0.267949	52	1.035276	13	3.86370	70	3.73205	72	0.965926	12	**0** 0
	cos		cotg		cosec		sec		tang		sin		

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

70	
1	7.0
2	14.0
3	21.0
4	28.0
5	35.0
6	42.0
7	49.0
8	56.0
9	63.0

72	
1	7.2
2	14.4
3	21.6
4	28.8
5	36.0
6	43.2
7	50.4
8	57.6
9	64.8

74	
1	7.4
2	14.8
3	22.2
4	29.6
5	37.0
6	44.4
7	51.8
8	59.2
9	66.6

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

75°

15°

0′ 0″	sin		tang		sec		cosec		cotg		cos		60′ 0″
	0.258819		0.267949		1.035276		3.86370		3.73205		0.965926		
10	8866	47	8001	52	5290	14	6300	70	3133	72	5913	13	50
20	8913	47	8053	52	5303	13	6231	69	3060	73	5901	12	40
30	8960	47	8105	52	5317	14	6161	70	2988	72	5888	13	30
40	9006	46	8157	52	5330	13	6091	70	2916	72	5876	12	20
50	9053	47	8209	52	5343	13	6021	70	2844	72	5863	13	10
1 0	0.259100	47	0.268261	52	1.035357	14	3.85951	70	3.72771	73	0.965850	13	59 0
10	9147	47	8313	52	5370	13	5882	69	2699	72	5838	12	50
20	9194	47	8365	52	5384	14	5812	70	2627	72	5825	13	40
30	9240	46	8417	52	5397	13	5742	70	2555	72	5813	12	30
40	9287	47	8469	52	5411	14	5673	69	2483	72	5800	13	20
50	9334	47	8521	52	5424	13	5603	70	2411	72	5788	12	10
2 0	0.259381	47	0.268573	52	1.035438	14	3.85533	70	3.72338	73	0.965775	13	58 0
10	9428	47	8625	52	5451	13	5464	69	2266	72	5763	12	50
20	9475	47	8677	52	5465	14	5394	70	2194	72	5750	13	40
30	9521	46	8729	52	5478	13	5325	69	2122	72	5737	13	30
40	9568	47	8781	52	5492	14	5255	70	2050	72	5725	12	20
50	9615	47	8833	52	5505	13	5186	69	1978	72	5712	13	10
3 0	0.259662	47	0.268885	52	1.035519	14	3.85116	70	3.71907	71	0.965700	12	57 0
10	9709	47	8937	52	5532	13	5047	69	1835	72	5687	13	50
20	9756	47	8989	52	5546	14	4977	70	1763	72	5674	13	40
30	9802	46	9041	52	5559	13	4908	69	1691	72	5662	12	30
40	9849	47	9093	52	5573	14	4839	69	1619	72	5649	13	20
50	9896	47	9145	52	5586	13	4769	70	1547	72	5637	12	10
4 0	0.259943	47	0.269197	52	1.035600	14	3.84700	69	3.71476	71	0.965624	13	56 0
10	0.259990	47	9249	52	5613	13	4631	69	1404	72	5611	13	50
20	0.260036	46	9301	52	5627	14	4562	69	1332	72	5599	12	40
30	0083	47	9353	52	5640	13	4492	70	1260	72	5586	13	30
40	0130	47	9405	52	5654	14	4423	69	1189	71	5574	12	20
50	0177	47	9457	52	5667	13	4354	69	1117	72	5561	13	10
5 0	0.260224	47	0.269509	52	1.035681	14	3.84285	69	3.71046	71	0.965548	13	55 0
10	0270	46	9561	52	5694	13	4216	69	0974	72	5536	12	50
20	0317	47	9613	52	5708	14	4147	69	0902	72	5523	13	40
30	0364	47	9665	52	5722	14	4078	69	0831	71	5511	12	30
40	0411	47	9717	52	5735	13	4009	69	0759	72	5498	13	20
50	0458	47	9769	52	5749	14	3940	69	0688	71	5485	13	10
6 0	0.260505	47	0.269821	52	1.035762	13	3.83871	69	3.70616	72	0.965473	12	54 0
10	0551	46	9873	52	5776	14	3802	69	0545	71	5460	13	50
20	0598	47	9925	52	5789	13	3733	69	0474	71	5447	13	40
30	0645	47	0.269977	52	5803	14	3664	69	0402	72	5435	12	30
40	0692	47	0.270029	52	5816	13	3595	69	0331	71	5422	13	20
50	0739	47	0081	52	5830	14	3526	69	0260	71	5409	13	10
7 0	0.260785	46	0.270133	52	1.035843	13	3.83457	69	3.70188	72	0.965397	12	53 0
10	0832	47	0185	52	5857	14	3388	69	0117	71	5384	13	50
20	0879	47	0237	52	5871	14	3320	68	3.70046	71	5372	12	40
30	0926	47	0289	52	5884	13	3251	69	3.69975	71	5359	13	30
40	0973	47	0341	52	5898	14	3182	69	9903	72	5346	13	20
50	1019	46	0393	52	5911	13	3113	69	9832	71	5334	12	10
8 0	0.261066	47	0.270445	52	1.035925	14	3.83045	68	3.69761	71	0.965321	13	52 0
10	1113	47	0497	52	5939	14	2976	69	9690	71	5308	13	50
20	1160	47	0549	52	5952	13	2907	69	9619	71	5296	12	40
30	1207	47	0601	52	5966	14	2839	68	9548	71	5283	13	30
40	1253	46	0653	52	5979	13	2770	69	9477	71	5270	13	20
50	1300	47	0705	52	5993	14	2702	68	9406	71	5258	12	10
9 0	0.261347	47	0.270757	52	1.036006	13	3.82633	69	3.69335	71	0.965245	13	51 0
10	1394	47	0809	52	6020	14	2565	68	9264	71	5232	13	50
20	1441	47	0861	52	6034	14	2496	69	9193	71	5220	12	40
30	1487	46	0913	52	6047	13	2428	68	9122	71	5207	13	30
40	1534	47	0965	52	6061	14	2359	69	9051	71	5194	13	20
50	1581	47	1017	52	6075	14	2291	68	8980	71	5182	12	10
10 0	0.261628	47	0.271069	52	1.036088	13	3.82223	68	3.68909	71	0.965169	13	50 0
	cos		cotg		cosec		sec		tang		sin		

12	
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6	7.2
7	8.4
8	9.6
9	10.8

14	
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2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

47	
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2	9.4
3	14.1
4	18.8
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6	28.2
7	32.9
8	37.6
9	42.3

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

68	
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2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

70	
1	7.0
2	14.0
3	21.0
4	28.0
5	35.0
6	42.0
7	49.0
8	56.0
9	63.0

72	
1	7.2
2	14.4
3	21.6
4	28.8
5	36.0
6	43.2
7	50.4
8	57.6
9	64.8

74°

15°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.261628		0.271069		1.036088		3.82223		3.68909		0.965169		**50′** 0″
10	1675	47	1121	52	6102	14	2154	69	8838	71	5156	13	50
20	1721	46	1173	52	6115	13	2086	68	8768	70	5143	13	40
30	1768	47	1226	53	6129	14	2018	68	8697	71	5131	12	30
40	1815	47	1278	52	6143	14	1949	69	8626	71	5118	13	20
50	1862	47	1330	52	6156	13	1881	68	8555	71	5105	13	10
11 0	0.261908	46	0.271382	52	1.036170	14	3.81813	68	3.68485	70	0.965093	12	**49** 0
10	1955	47	1434	52	6184	14	1745	68	8414	71	5080	13	50
20	2002	47	1486	52	6197	13	1676	69	8343	71	5067	13	40
30	2049	47	1538	52	6211	14	1608	68	8273	70	5055	12	30
40	2096	47	1590	52	6224	13	1540	68	8202	71	5042	13	20
50	2142	46	1642	52	6238	14	1472	68	8132	70	5029	13	10
12 0	0.262189	47	0.271694	52	1.036252	14	3.81404	68	3.68061	71	0.965016	13	**48** 0
10	2236	47	1746	52	6265	13	1336	68	7991	70	5004	12	50
20	2283	47	1798	52	6279	14	1268	68	7920	71	4991	13	40
30	2330	47	1850	52	6293	14	1200	68	7850	70	4978	13	30
40	2376	46	1902	52	6306	13	1132	68	7779	71	4966	12	20
50	2423	47	1954	52	6320	14	1064	68	7709	70	4953	13	10
13 0	0.262470	47	0.272006	52	1.036334	14	3.80996	68	3.67638	71	0.964940	13	**47** 0
10	2517	47	2058	52	6347	13	0928	68	7568	70	4927	13	50
20	2563	46	2111	53	6361	14	0860	68	7498	70	4915	12	40
30	2610	47	2163	52	6375	14	0792	68	7427	71	4902	13	30
40	2657	47	2215	52	6388	13	0725	67	7357	70	4889	13	20
50	2704	47	2267	52	6402	14	0657	68	7287	70	4877	12	10
14 0	0.262751	47	0.272319	52	1.036416	14	3.80589	68	3.67217	70	0.964864	13	**46** 0
10	2797	46	2371	52	6429	13	0521	68	7146	71	4851	13	50
20	2844	47	2423	52	6443	14	0454	67	7076	70	4838	13	40
30	2891	47	2475	52	6457	14	0386	68	7006	70	4826	12	30
40	2938	47	2527	52	6470	13	0318	68	6936	70	4813	13	20
50	2984	46	2579	52	6484	14	0251	67	6866	70	4800	13	10
15 0	0.263031	47	0.272631	52	1.036498	14	3.80183	68	3.66796	70	0.964787	13	**45** 0
10	3078	47	2683	52	6512	14	0115	68	6726	70	4775	12	50
20	3125	47	2735	52	6525	13	3.80048	67	6656	70	4762	13	40
30	3172	47	2788	53	6539	14	3.79980	68	6586	70	4749	13	30
40	3218	46	2840	52	6553	14	9913	67	6516	70	4736	13	20
50	3265	47	2892	52	6566	13	9845	68	6446	70	4724	12	10
16 0	0.263312	47	0.272944	52	1.036580	14	3.79778	67	3.66376	70	0.964711	13	**44** 0
10	3359	47	2996	52	6594	14	9710	68	6306	70	4698	13	50
20	3405	46	3048	52	6608	14	9643	67	6236	70	4685	13	40
30	3452	47	3100	52	6621	13	9576	67	6166	70	4672	13	30
40	3499	47	3152	52	6635	14	9508	68	6096	70	4660	12	20
50	3546	47	3204	52	6649	14	9441	67	6026	70	4647	13	10
17 0	0.263592	46	0.273256	52	1.036662	13	3.79374	67	3.65957	69	0.964634	13	**43** 0
10	3639	47	3309	53	6676	14	9306	68	5887	70	4621	13	50
20	3686	47	3361	52	6690	14	9239	67	5817	70	4609	12	40
30	3733	47	3413	52	6704	14	9172	67	5747	70	4596	13	30
40	3780	47	3465	52	6717	13	9104	68	5678	69	4583	13	20
50	3826	46	3517	52	6731	14	9037	67	5608	70	4570	13	10
18 0	0.263873	47	0.273569	52	1.036745	14	3.78970	67	3.65538	70	0.964557	13	**42** 0
10	3920	47	3621	52	6759	14	8903	67	5469	69	4545	12	50
20	3967	47	3673	52	6772	13	8836	67	5399	70	4532	13	40
30	4013	46	3725	52	6786	14	8769	67	5330	69	4519	13	30
40	4060	47	3777	52	6800	14	8702	67	5260	70	4506	13	20
50	4107	47	3830	53	6814	14	8635	67	5191	69	4493	13	10
19 0	0.264154	47	0.273882	52	1.036827	13	3.78568	67	3.65121	70	0.964481	12	**41** 0
10	4200	46	3934	52	6841	14	8501	67	5052	69	4468	13	50
20	4247	47	3986	52	6855	14	8434	67	4982	70	4455	13	40
30	4294	47	4038	52	6869	14	8367	67	4913	69	4442	13	30
40	4341	47	4090	52	6883	14	8300	67	4843	70	4429	13	20
50	4387	46	4142	52	6896	13	8233	67	4774	69	4417	12	10
20 0	0.264434	47	0.274194	52	1.036910	14	3.78166	67	3.64705	69	0.964404	13	**40** 0
	cos		cotg		cosec		sec		tang		sin		

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

67	
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2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

69	
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2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

71	
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2	14.2
3	21.3
4	28.4
5	35.5
6	42.6
7	49.7
8	56.8
9	63.9

73	
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2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

74°

15°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.264434		0.274194		1.036910		3.78166		3.64705		0.964404		**40′** 0″
10	4481	47	4247	53	6924	14	8099	67	4635	70	4391	13	50
20	4528	47	4299	52	6938	14	8032	67	4566	69	4378	13	40
30	4574	46	4351	52	6951	13	7965	67	4497	69	4365	13	30
40	4621	47	4403	52	6965	14	7899	66	4428	69	4352	13	20
50	4668	47	4455	52	6979	14	7832	67	4358	70	4340	12	10
21 0	0.264715	47	0.274507	52	1.036993	14	3.77765	67	3.64289	69	0.964327	13	**39** 0
10	4761	46	4559	52	7007	14	7699	66	4220	69	4314	13	50
20	4808	47	4612	53	7020	13	7632	67	4151	69	4301	13	40
30	4855	47	4664	52	7034	14	7565	67	4082	69	4288	13	30
40	4902	47	4716	52	7048	14	7499	66	4013	69	4275	13	20
50	4948	46	4768	52	7062	14	7432	67	3943	70	4263	12	10
22 0	0.264995	47	0.274820	52	1.037076	14	3.77365	67	3.63874	69	0.964250	13	**38** 0
10	5042	47	4872	52	7090	14	7299	66	3805	69	4237	13	50
20	5089	47	4924	52	7103	13	7232	67	3736	69	4224	13	40
30	5135	46	4977	53	7117	14	7166	66	3667	69	4211	13	30
40	5182	47	5029	52	7131	14	7099	67	3598	69	4198	13	20
50	5229	47	5081	52	7145	14	7033	66	3530	68	4185	13	10
23 0	0.265276	47	0.275133	52	1.037159	14	3.76966	67	3.63461	69	0.964173	12	**37** 0
10	5322	46	5185	52	7173	14	6900	66	3392	69	4160	13	50
20	5369	47	5237	52	7186	13	6834	66	3323	69	4147	13	40
30	5416	47	5289	52	7200	14	6767	67	3254	69	4134	13	30
40	5463	47	5342	53	7214	14	6701	66	3185	69	4121	13	20
50	5509	46	5394	52	7228	14	6635	66	3116	69	4108	13	10
24 0	0.265556	47	0.275446	52	1.037242	14	3.76568	67	3.63048	68	0.964095	13	**36** 0
10	5603	47	5498	52	7256	14	6502	66	2979	69	4083	12	50
20	5650	47	5550	52	7269	13	6436	66	2910	69	4070	13	40
30	5696	46	5602	52	7283	14	6370	66	2842	68	4057	13	30
40	5743	47	5655	53	7297	14	6303	67	2773	69	4044	13	20
50	5790	47	5707	52	7311	14	6237	66	2704	69	4031	13	10
25 0	0.265837	47	0.275759	52	1.037325	14	3.76171	66	3.62636	68	0.964018	13	**35** 0
10	5883	46	5811	52	7339	14	6105	66	2567	69	4005	13	50
20	5930	47	5863	52	7353	14	6039	66	2498	69	3992	13	40
30	5977	47	5915	52	7367	14	5973	66	2430	68	3979	13	30
40	6023	46	5968	53	7380	13	5907	66	2361	69	3967	12	20
50	6070	47	6020	52	7394	14	5841	66	2293	68	3954	13	10
26 0	0.266117	47	0.276072	52	1.037408	14	3.75775	66	3.62224	69	0.963941	13	**34** 0
10	6164	47	6124	52	7422	14	5709	66	2156	68	3928	13	50
20	6210	46	6176	52	7436	14	5643	66	2088	68	3915	13	40
30	6257	47	6228	52	7450	14	5577	66	2019	69	3902	13	30
40	6304	47	6281	53	7464	14	5511	66	1951	68	3889	13	20
50	6351	47	6333	52	7478	14	5445	66	1882	69	3876	13	10
27 0	0.266397	46	0.276385	52	1.037492	14	3.75379	66	3.61814	68	0.963863	13	**33** 0
10	6444	47	6437	52	7505	13	5313	66	1746	68	3850	13	50
20	6491	47	6489	52	7519	14	5247	66	1678	68	3837	13	40
30	6538	47	6542	53	7533	14	5182	65	1609	69	3825	12	30
40	6584	46	6594	52	7547	14	5116	66	1541	68	3812	13	20
50	6631	47	6646	52	7561	14	5050	66	1473	68	3799	13	10
28 0	0.266678	47	0.276698	52	1.037575	14	3.74984	66	3.61405	68	0.963786	13	**32** 0
10	6724	46	6750	52	7589	14	4919	65	1337	68	3773	13	50
20	6771	47	6803	53	7603	14	4853	66	1268	69	3760	13	40
30	6818	47	6855	52	7617	14	4787	66	1200	68	3747	13	30
40	6865	47	6907	52	7631	14	4722	65	1132	68	3734	13	20
50	6911	46	6959	52	7645	14	4656	66	1064	68	3721	13	10
29 0	0.266958	47	0.277011	52	1.037659	14	3.74591	65	3.60996	68	0.963708	13	**31** 0
10	7005	47	7064	53	7672	13	4525	66	0928	68	3695	13	50
20	7051	46	7116	52	7686	14	4460	65	0860	68	3682	13	40
30	7098	47	7168	52	7700	14	4394	66	0792	68	3669	13	30
40	7145	47	7220	52	7714	14	4329	65	0724	68	3656	13	20
50	7192	47	7272	52	7728	14	4263	66	0656	68	3643	13	10
30 0	0.267238	46	0.277325	53	1.037742	14	3.74198	65	3.60588	68	0.963630	13	**30** 0
	cos		cotg		cosec		sec		tang		sin		

12

1	1.2
2	2.4
3	3.6
4	4.8
5	6.0
6	7.2
7	8.4
8	9.6
9	10.8

14

1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

46

1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52

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2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

64

1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

66

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2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

68

1	6.8
2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

69

1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

74°

15°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.267238		0.277325		1.037742		3.74198		3.60588		0.963630		**30′** 0″
10	7285	47	7377	52	7756	14	4132	66	0520	68	3617	13	50
20	7332	47	7429	52	7770	14	4067	65	0453	67	3605	12	40
30	7379	47	7481	52	7784	14	4002	65	0385	68	3592	13	30
40	7425	46	7533	52	7798	14	3936	66	0317	68	3579	13	20
50	7472	47	7586	53	7812	14	3871	65	0249	68	3566	13	10
31 0	0.267519	47	0.277638	52	1.037826	14	3.73806	65	3.60181	68	0.963553	13	**29** 0
10	7565	46	7690	52	7840	14	3740	66	0114	67	3540	13	50
20	7612	47	7742	52	7854	14	3675	65	3.60046	68	3527	13	40
30	7659	47	7794	52	7868	14	3610	65	3.59978	68	3514	13	30
40	7706	47	7847	53	7882	14	3545	65	9911	67	3501	13	20
50	7752	46	7899	52	7896	14	3480	65	9843	68	3488	13	10
32 0	0.267799	47	0.277951	52	1.037910	14	3.73414	66	3.59775	68	0.963475	13	**28** 0
10	7846	47	8003	52	7924	14	3349	65	9708	67	3462	13	50
20	7892	46	8056	53	7938	14	3284	65	9640	68	3449	13	40
30	7939	47	8108	52	7952	14	3219	65	9573	67	3436	13	30
40	7986	47	8160	52	7966	14	3154	65	9505	68	3423	13	20
50	8032	46	8212	52	7980	14	3089	65	9438	67	3410	13	10
33 0	0.268079	47	0.278265	53	1.037994	14	3.73024	65	3.59370	68	0.963397	13	**27** 0
10	8126	47	8317	52	8008	14	2959	65	9303	67	3384	13	50
20	8173	47	8369	52	8022	14	2894	65	9235	68	3371	13	40
30	8219	46	8421	52	8036	14	2829	65	9168	67	3358	13	30
40	8266	47	8474	53	8050	14	2764	65	9101	67	3345	13	20
50	8313	47	8526	52	8064	14	2699	65	9033	68	3332	13	10
34 0	0.268359	46	0.278578	52	1.038078	14	3.72635	64	3.58966	67	0.963319	13	**26** 0
10	8406	47	8630	52	8092	14	2570	65	8899	67	3306	13	50
20	8453	47	8682	52	8106	14	2505	65	8831	68	3293	13	40
30	8500	47	8735	53	8120	14	2440	65	8764	67	3280	13	30
40	8546	46	8787	52	8134	14	2375	65	8697	67	3267	13	20
50	8593	47	8839	52	8148	14	2311	64	8630	67	3254	13	10
35 0	0.268640	47	0.278891	52	1.038162	14	3.72246	65	3.58562	68	0.963241	13	**25** 0
10	8686	46	8944	53	8176	14	2181	65	8495	67	3228	13	50
20	8733	47	8996	52	8190	14	2117	64	8428	67	3215	13	40
30	8780	47	9048	52	8204	14	2052	65	8361	67	3202	13	30
40	8826	46	9100	52	8218	14	1987	65	8294	67	3189	13	20
50	8873	47	9153	53	8232	14	1923	64	8227	67	3176	13	10
36 0	0.268920	47	0.279205	52	1.038246	14	3.71858	65	3.58160	67	0.963163	13	**24** 0
10	8967	47	9257	52	8260	14	1793	65	8093	67	3150	13	50
20	9013	46	9310	53	8274	14	1729	64	8026	67	3136	14	40
30	9060	47	9362	52	8289	15	1664	65	7959	67	3123	13	30
40	9107	47	9414	52	8303	14	1600	64	7892	67	3110	13	20
50	9153	46	9466	52	8317	14	1535	65	7825	67	3097	13	10
37 0	0.269200	47	0.279519	53	1.038331	14	3.71471	64	3.57758	67	0.963084	13	**23** 0
10	9247	47	9571	52	8345	14	1407	64	7691	67	3071	13	50
20	9293	46	9623	52	8359	14	1342	65	7624	67	3058	13	40
30	9340	47	9675	52	8373	14	1278	64	7557	67	3045	13	30
40	9387	47	9728	53	8387	14	1214	64	7491	66	3032	13	20
50	9433	46	9780	52	8401	14	1149	65	7424	67	3019	13	10
38 0	0.269480	47	0.279832	52	1.038415	14	3.71085	64	3.57357	67	0.963006	13	**22** 0
10	9527	47	9885	53	8429	14	1021	64	7290	67	2993	13	50
20	9573	46	9937	52	8443	14	0956	65	7223	67	2980	13	40
30	9620	47	0.279989	52	8457	14	0892	64	7157	66	2967	13	30
40	9667	47	0.280041	52	8472	15	0828	64	7090	67	2954	13	20
50	9714	47	0094	53	8486	14	0764	64	7023	67	2941	13	10
39 0	0.269760	46	0.280146	52	1.038500	14	3.70700	64	3.56957	66	0.962928	13	**21** 0
10	9807	47	0198	52	8514	14	0635	65	6890	67	2914	14	50
20	9854	47	0251	53	8528	14	0571	64	6824	66	2901	13	40
30	9900	46	0303	52	8542	14	0507	64	6757	67	2888	13	30
40	9947	47	0355	52	8556	14	0443	64	6691	66	2875	13	20
50	0.269994	47	0407	52	8570	14	0379	64	6624	67	2862	13	10
40 0	0.270040	46	0.280460	53	1.038584	14	3.70315	64	3.56557	67	0.962849	13	**20** 0
	cos		cotg		cosec		sec		tang		sin		

13		15		47		53		65		67		68		70	
1	1.3	1	1.5	1	4.7	1	5.3	1	6.5	1	6.7	1	6.8	1	7.0
2	2.6	2	3.0	2	9.4	2	10.6	2	13.0	2	13.4	2	13.6	2	14.0
3	3.9	3	4.5	3	14.1	3	15.9	3	19.5	3	20.1	3	20.4	3	21.0
4	5.2	4	6.0	4	18.8	4	21.2	4	26.0	4	26.8	4	27.2	4	28.0
5	6.5	5	7.5	5	23.5	5	26.5	5	32.5	5	33.5	5	34.0	5	35.0
6	7.8	6	9.0	6	28.2	6	31.8	6	39.0	6	40.2	6	40.8	6	42.0
7	9.1	7	10.5	7	32.9	7	37.1	7	45.5	7	46.9	7	47.6	7	49.0
8	10.4	8	12.0	8	37.6	8	42.4	8	52.0	8	53.6	8	54.4	8	56.0
9	11.7	9	13.5	9	42.3	9	47.7	9	58.5	9	60.3	9	61.2	9	63.0

74°

15°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.270040		0.280460		1.038584		3.70315		3.56557		0.962849		**20′** 0″
10	0087	47	0512	52	8599	15	0251	64	6491	66	2836	13	50
20	0134	47	0564	52	8613	14	0187	64	6425	66	2823	13	40
30	0180	46	0617	53	8627	14	0123	64	6358	67	2810	13	30
40	0227	47	0669	52	8641	14	3.70059	64	6292	66	2797	13	20
50	0274	47	0721	52	8655	14	3.69995	64	6225	67	2784	13	10
41 0	0.270320	46	0.280773	52	1.038669	14	3.69931	64	3.56159	66	0.962770	14	**19** 0
10	0367	47	0826	53	8683	14	9868	63	6093	66	2757	13	50
20	0414	47	0878	52	8698	15	9804	64	6026	67	2744	13	40
30	0460	46	0930	52	8712	14	9740	64	5960	66	2731	13	30
40	0507	47	0983	53	8726	14	9676	64	5894	66	2718	13	20
50	0554	47	1035	52	8740	14	9612	64	5828	66	2705	13	10
42 0	0.270600	46	0.281087	52	1.038754	14	3.69549	63	3.55761	67	0.962692	13	**18** 0
10	0647	47	1140	53	8768	14	9485	64	5695	66	2679	13	50
20	0694	47	1192	52	8782	14	9421	64	5629	66	2666	13	40
30	0740	46	1244	52	8797	15	9357	64	5563	66	2652	14	30
40	0787	47	1297	53	8811	14	9294	63	5497	66	2639	13	20
50	0834	47	1349	52	8825	14	9230	64	5431	66	2626	13	10
43 0	0.270880	46	0.281401	52	1.038839	14	3.69167	63	3.55364	67	0.962613	13	**17** 0
10	0927	47	1454	53	8853	14	9103	64	5298	66	2600	13	50
20	0974	47	1506	52	8867	14	9039	64	5232	66	2587	13	40
30	1020	46	1558	52	8882	15	8976	63	5166	66	2574	13	30
40	1067	47	1611	53	8896	14	8912	64	5100	66	2560	14	20
50	1114	47	1663	52	8910	14	8849	63	5034	66	2547	13	10
44 0	0.271160	46	0.281715	52	1.038924	14	3.68785	64	3.54968	66	0.962534	13	**16** 0
10	1207	47	1767	52	8938	14	8722	63	4903	65	2521	13	50
20	1254	47	1820	53	8953	15	8658	64	4837	66	2508	13	40
30	1300	46	1872	52	8967	14	8595	63	4771	66	2495	13	30
40	1347	47	1924	52	8981	14	8532	63	4705	66	2482	13	20
50	1394	47	1977	53	8995	14	8468	64	4639	66	2468	14	10
45 0	0.271440	46	0.282029	52	1.039009	14	3.68405	63	3.54573	66	0.962455	13	**15** 0
10	1487	47	2082	53	9024	15	8342	63	4507	66	2442	13	50
20	1534	47	2134	52	9038	14	8278	64	4442	65	2429	13	40
30	1580	46	2186	52	9052	14	8215	63	4376	66	2416	13	30
40	1627	47	2239	53	9066	14	8152	63	4310	66	2403	13	20
50	1674	47	2291	52	9080	14	8089	63	4245	65	2389	14	10
46 0	0.271720	46	0.282343	52	1.039095	15	3.68025	64	3.54179	66	0.962376	13	**14** 0
10	1767	47	2396	53	9109	14	7962	63	4113	66	2363	13	50
20	1814	47	2448	52	9123	14	7899	63	4048	65	2350	13	40
30	1860	46	2500	52	9137	14	7836	63	3982	66	2337	13	30
40	1907	47	2553	53	9152	15	7773	63	3916	66	2324	13	20
50	1954	47	2605	52	9166	14	7710	63	3851	65	2310	14	10
47 0	0.272000	46	0.282657	52	1.039180	14	3.67647	63	3.53785	66	0.962297	13	**13** 0
10	2047	47	2710	53	9194	14	7584	63	3720	65	2284	13	50
20	2094	47	2762	52	9209	15	7521	63	3654	66	2271	13	40
30	2140	46	2814	52	9223	14	7458	63	3589	65	2258	13	30
40	2187	47	2867	53	9237	14	7395	63	3523	66	2244	14	20
50	2234	47	2919	52	9251	14	7332	63	3458	65	2231	13	10
48 0	0.272280	46	0.282971	52	1.039266	15	3.67269	63	3.53393	65	0.962218	13	**12** 0
10	2327	47	3024	53	9280	14	7206	63	3327	66	2205	13	50
20	2374	47	3076	52	9294	14	7143	63	3262	65	2192	13	40
30	2420	46	3129	53	9308	14	7080	63	3196	66	2178	14	30
40	2467	47	3181	52	9323	15	7017	63	3131	65	2165	13	20
50	2513	46	3233	52	9337	14	6954	63	3066	65	2152	13	10
49 0	0.272560	47	0.283286	53	1.039351	14	3.66892	62	3.53001	65	0.962139	13	**11** 0
10	2607	47	3338	52	9365	14	6829	63	2935	66	2126	13	50
20	2653	46	3390	52	9380	15	6766	63	2870	65	2112	14	40
30	2700	47	3443	53	9394	14	6703	63	2805	65	2099	13	30
40	2747	47	3495	52	9408	14	6641	62	2740	65	2086	13	20
50	2793	46	3548	53	9423	15	6578	63	2675	65	2073	13	10
50 0	0.272840	47	0.283600	52	1.039437	14	3.66515	63	3.52609	66	0.962059	14	**10** 0
	cos		cotg		cosec		sec		tang		sin		

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

15	
1	1.5
2	3.0
3	4.5
4	6.0
5	7.5
6	9.0
7	10.5
8	12.0
9	13.5

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

62	
1	6.2
2	12.4
3	18.6
4	24.8
5	31.0
6	37.2
7	43.4
8	49.6
9	55.8

64	
1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

66	
1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

74°

15°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.272840		0.283600		1.039437		3.66515		3.52609		0.962059		**10′** 0″
10	2887	47	3652	52	9451	14	6453	62	2544	65	2046	13	50
20	2933	46	3705	53	9465	14	6390	63	2479	65	2033	13	40
30	2980	47	3757	52	9480	15	6327	63	2414	65	2020	13	30
40	3027	47	3809	52	9494	14	6265	62	2349	65	2006	14	20
50	3073	46	3862	53	9508	14	6202	63	2284	65	1993	13	10
51 0	0.273120	47	0.283914	52	1.039523	15	3.66140	62	3.52219	65	0.961980	13	**9** 0
10	3166	46	3967	53	9537	14	6077	63	2154	65	1967	13	50
20	3213	47	4019	52	9551	14	6015	62	2089	65	1954	13	40
30	3260	47	4071	52	9566	15	5952	63	2024	65	1940	14	30
40	3306	46	4124	53	9580	14	5890	62	1959	65	1927	13	20
50	3353	47	4176	52	9594	14	5827	63	1894	65	1914	13	10
52 0	0.273400	47	0.284229	53	1.039609	15	3.65765	62	3.51829	65	0.961901	13	**8** 0
10	3446	46	4281	52	9623	14	5703	62	1765	64	1887	14	50
20	3493	47	4333	52	9637	14	5640	63	1700	65	1874	13	40
30	3540	47	4386	53	9652	15	5578	62	1635	65	1861	13	30
40	3586	46	4438	52	9666	14	5516	62	1570	65	1847	14	20
50	3633	47	4491	53	9680	14	5453	63	1505	65	1834	13	10
53 0	0.273679	46	0.284543	52	1.039695	15	3.65391	62	3.51441	64	0.961821	13	**7** 0
10	3726	47	4595	52	9709	14	5329	62	1376	65	1808	13	50
20	3773	47	4648	53	9723	14	5267	62	1311	65	1794	14	40
30	3819	46	4700	52	9738	15	5204	63	1247	64	1781	13	30
40	3866	47	4753	53	9752	14	5142	62	1182	65	1768	13	20
50	3913	47	4805	52	9766	14	5080	62	1117	65	1755	13	10
54 0	0.273959	46	0.284857	52	1.039781	15	3.65018	62	3.51053	64	0.961741	14	**6** 0
10	4006	47	4910	53	9795	14	4956	62	0988	65	1728	13	50
20	4052	46	4962	52	9809	14	4894	62	0924	64	1715	13	40
30	4099	47	5015	53	9824	15	4832	62	0859	65	1701	14	30
40	4146	47	5067	52	9838	14	4770	62	0795	64	1688	13	20
50	4192	46	5120	53	9852	14	4707	63	0730	65	1675	13	10
55 0	0.274239	47	0.285172	52	1.039867	15	3.64645	62	3.50666	64	0.961662	13	**5** 0
10	4286	47	5224	52	9881	14	4584	61	0601	65	1648	14	50
20	4332	46	5277	53	9896	15	4522	62	0537	64	1635	13	40
30	4379	47	5329	52	9910	14	4460	62	0472	65	1622	13	30
40	4425	46	5382	53	9924	14	4398	62	0408	64	1608	14	20
50	4472	47	5434	52	9939	15	4336	62	0344	64	1595	13	10
56 0	0.274519	47	0.2854487	53	1.039953	14	3.64274	62	3.50279	65	0.961582	13	**4** 0
10	4565	46	5539	52	9968	15	4212	62	0215	64	1568	14	50
20	4612	47	5591	52	9982	14	4150	62	0151	64	1555	13	40
30	4659	47	5644	53	1.039996	14	4088	62	0086	65	1542	13	30
40	4705	46	5696	52	1.040011	15	4027	61	3.50022	64	1529	13	20
50	4752	47	5749	53	0025	14	3965	62	3.49958	64	1515	14	10
57 0	0.274798	46	0.285801	52	1.040040	15	3.63903	62	3.49894	64	0.961502	13	**3** 0
10	4845	47	5854	53	0054	14	3841	62	9829	65	1489	13	50
20	4892	47	5906	52	0068	14	3780	61	9765	64	1475	14	40
30	4938	46	5959	53	0083	15	3718	62	9701	64	1462	13	30
40	4985	47	6011	52	0097	14	3656	62	9637	64	1449	13	20
50	5031	46	6063	52	0112	15	3595	61	9573	64	1435	14	10
58 0	0.275078	47	0.286116	53	1.040126	14	3.63533	62	3.49509	64	0.961422	13	**2** 0
10	5125	47	6168	52	0141	15	3472	61	9445	64	1409	13	50
20	5171	46	6221	53	0155	14	3410	62	9381	64	1395	14	40
30	5218	47	6273	52	0169	14	3348	62	9317	64	1382	13	30
40	5265	47	6326	53	0184	15	3287	61	9253	64	1369	13	20
50	5311	46	6378	52	0198	14	3225	62	9189	64	1355	14	10
59 0	0.275358	47	0.286431	53	1.040213	15	3.63164	61	3.49125	64	0.961342	13	**1** 0
10	5404	46	6483	52	0227	14	3102	62	9061	64	1328	14	50
20	5451	47	6536	53	0242	15	3041	61	8997	64	1315	13	40
30	5498	47	6588	52	0256	14	2980	61	8933	64	1302	13	30
40	5544	46	6640	52	0271	15	2918	62	8869	64	1288	14	20
50	5591	47	6693	53	0285	14	2857	61	8805	64	1275	13	10
60 0	0.275637	46	0.286745	52	1.040299	14	3.62796	61	3.48741	64	0.961262	13	**0** 0
	cos		cotg		cosec		sec		tang		sin		

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

61	
1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

63	
1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

65	
1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

67	
1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

74°

16°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.275637		0.286745		1.040299		3.62796		3.48741		0.961262		**60′** 0″
10	5684	47	6798	53	0314	15	2734	62	8678	63	1248	14	50
20	5731	47	6850	52	0328	14	2673	61	8614	64	1235	13	40
30	5777	46	6903	53	0343	15	2612	61	8550	64	1222	13	30
40	5824	47	6955	52	0357	14	2550	62	8486	64	1208	14	20
50	5870	46	7008	53	0372	15	2489	61	8423	63	1195	13	10
1 0	0.275917	47	0.287060	52	1.040386	14	3.62428	61	3.48359	64	0.961181	14	**59** 0
10	5964	47	7113	53	0401	15	2367	61	8295	64	1168	13	50
20	6010	46	7165	52	0415	14	2306	61	8232	63	1155	13	40
30	6057	47	7218	53	0430	15	2244	62	8168	64	1141	14	30
40	6103	46	7270	52	0444	14	2183	61	8104	64	1128	13	20
50	6150	47	7323	53	0459	15	2122	61	8041	63	1115	13	10
2 0	0.276197	47	0.287375	52	1.040473	14	3.62061	61	3.47977	64	0.961101	14	**58** 0
10	6243	46	7428	53	0488	15	2000	61	7914	63	1088	13	50
20	6290	47	7480	52	0502	14	1939	61	7850	64	1074	14	40
30	6336	46	7533	53	0517	15	1878	61	7787	63	1061	13	30
40	6383	47	7585	52	0531	14	1817	61	7723	64	1048	13	20
50	6430	47	7638	53	0546	15	1756	61	7660	63	1034	14	10
3 0	0.276476	46	0.287690	52	1.040560	14	3.61695	61	3.47596	64	0.961021	13	**57** 0
10	6523	47	7743	53	0575	15	1634	61	7533	63	1007	14	50
20	6569	46	7795	52	0589	14	1573	61	7470	63	0994	13	40
30	6616	47	7848	53	0604	15	1512	61	7406	64	0981	13	30
40	6662	46	7900	52	0618	14	1451	61	7343	63	0967	14	20
50	6709	47	7953	53	0633	15	1390	61	7279	64	0954	13	10
4 0	0.276756	47	0.288005	52	1.040647	14	3.61330	60	3.47216	63	0.960940	14	**56** 0
10	6802	46	8058	53	0662	15	1269	61	7153	63	0927	13	50
20	6849	47	8110	52	0676	14	1208	61	7090	63	0913	14	40
30	6895	46	8163	53	0691	15	1147	61	7026	64	0900	13	30
40	6942	47	8215	52	0705	14	1086	61	6963	63	0887	13	20
50	6989	47	8268	53	0720	15	1026	60	6900	63	0873	14	10
5 0	0.277035	46	0.288320	52	1.040735	15	3.60965	61	3.46837	63	0.960860	13	**55** 0
10	7082	47	8373	53	0749	14	0904	61	6774	63	0846	14	50
20	7128	46	8425	52	0764	15	0844	60	6710	64	0833	13	40
30	7175	47	8478	53	0778	14	0783	61	6647	63	0819	14	30
40	7221	46	8530	52	0793	15	0722	61	6584	63	0806	13	20
50	7268	47	8583	53	0807	14	0662	60	6521	63	0793	13	10
6 0	0.277315	47	0.288635	52	1.040822	15	3.60601	61	3.46458	63	0.960779	14	**54** 0
10	7361	46	8688	53	0836	14	0541	60	6395	63	0766	13	50
20	7408	47	8740	52	0851	15	0480	61	6332	63	0752	14	40
30	7454	46	8793	53	0866	15	0420	60	6269	63	0739	13	30
40	7501	47	8845	52	0880	14	0359	61	6206	63	0725	14	20
50	7548	47	8898	53	0895	15	0299	60	6143	63	0712	13	10
7 0	0.277594	46	0.288950	52	1.040909	14	3.60238	61	3.46080	63	0.960698	14	**53** 0
10	7641	47	9003	53	0924	15	0178	60	6017	63	0685	13	50
20	7687	46	9055	52	0939	15	0117	61	5954	63	0672	13	40
30	7734	47	9108	53	0953	14	3.60057	60	5892	62	0658	14	30
40	7780	46	9160	52	0968	15	3.59997	60	5829	63	0645	13	20
50	7827	47	9213	53	0982	14	9936	61	5766	63	0631	14	10
8 0	0.277874	47	0.289266	53	1.040997	15	3.59876	60	3.45703	63	0.960618	13	**52** 0
10	7920	46	9318	52	1011	14	9816	60	5640	63	0604	14	50
20	7967	47	9371	53	1026	15	9755	61	5578	62	0591	13	40
30	8013	46	9423	52	1041	15	9695	60	5515	63	0577	14	30
40	8060	47	9476	53	1055	14	9635	60	5452	63	0564	13	20
50	8106	46	9528	52	1070	15	9575	60	5389	63	0550	14	10
9 0	0.278153	47	0.289581	53	1.041085	15	3.59514	61	3.45327	62	0.960537	13	**51** 0
10	8200	47	9633	52	1099	14	9454	60	5264	63	0523	14	50
20	8246	46	9686	53	1114	15	9394	60	5202	62	0510	13	40
30	8293	47	9738	52	1128	14	9334	60	5139	63	0496	14	30
40	8339	46	9791	53	1143	15	9274	60	5076	63	0483	13	20
50	8386	47	9844	53	1158	15	9214	60	5014	62	0469	14	10
10 0	0.278432	46	0.289896	52	1.041172	14	3.59154	60	3.44951	63	0.960456	13	**50** 0
	cos		cotg		cosec		sec		tang		sin		

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

15	
1	1.5
2	3.0
3	4.5
4	6.0
5	7.5
6	9.0
7	10.5
8	12.0
9	13.5

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

59	
1	5.9
2	11.8
3	17.7
4	23.6
5	29.5
6	35.4
7	41.3
8	47.2
9	53.1

61	
1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

63	
1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

73°

16°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.278432		0.289896		1.041172		3.59154		3.44951		0.960456		**50′** 0″
10	8479	47	0.289949	53	1187	15	9094	60	4889	62	0442	14	50
20	8526	47	0.290001	52	1202	15	9034	60	4826	63	0429	13	40
30	8572	46	0054	53	1216	14	8974	60	4764	62	0415	14	30
40	8619	47	0106	52	1231	15	8914	60	4701	63	0402	13	20
50	8665	46	0159	53	1245	14	8854	60	4639	62	0388	14	10
11 0	0.278712	47	0.290211	52	1.041260	15	3.58794	60	3.44576	63	0.960375	13	**49** 0
10	8758	46	0264	53	1275	15	8734	60	4514	62	0361	14	50
20	8805	47	0317	53	1289	14	8674	60	4452	62	0348	13	40
30	8851	46	0369	52	1304	15	8614	60	4389	63	0334	14	30
40	8898	47	0422	53	1319	15	8554	60	4327	62	0321	13	20
50	8945	47	0474	52	1333	14	8494	60	4265	62	0307	14	10
12 0	0.278991	46	0.290527	53	1.041348	15	3.58434	60	3.44202	63	0.960294	13	**48** 0
10	9038	47	0579	52	1363	15	8375	59	4140	62	0280	14	50
20	9084	46	0632	53	1377	14	8315	60	4078	62	0267	13	40
30	9131	47	0685	53	1392	15	8255	60	4015	63	0253	14	30
40	9177	46	0737	52	1407	15	8195	60	3953	62	0240	13	20
50	9224	47	0790	53	1421	14	8136	59	3891	62	0226	14	10
13 0	0.279270	46	0.290842	52	1.041436	15	3.58076	60	3.43829	62	0.960212	14	**47** 0
10	9317	47	0895	53	1451	15	8016	60	3767	62	0199	13	50
20	9364	47	0947	52	1466	15	7957	59	3705	62	0185	14	40
30	9410	46	1000	53	1480	14	7897	60	3643	62	0172	13	30
40	9457	47	1053	53	1495	15	7837	60	3580	63	0158	14	20
50	9503	46	1105	52	1510	15	7778	59	3518	62	0145	13	10
14 0	0.279550	47	0.291158	53	1.041524	14	3.57718	60	3.43456	62	0.960131	14	**46** 0
10	9596	46	1210	52	1539	15	7659	59	3394	62	0118	13	50
20	9643	47	1263	53	1554	15	7599	60	3332	62	0104	14	40
30	9689	46	1316	53	1568	14	7539	60	3270	62	0091	13	30
40	9736	47	1368	52	1583	15	7480	59	3208	62	0077	14	20
50	9782	46	1421	53	1598	15	7421	59	3146	62	0063	14	10
15 0	0.279829	47	0.291473	52	1.041613	15	3.57361	60	3.43084	62	0.960050	13	**45** 0
10	9876	47	1526	53	1627	14	7302	59	3023	61	0036	14	50
20	9922	46	1579	53	1642	15	7242	60	2961	62	0023	13	40
30	0.279969	47	1631	52	1657	15	7183	59	2899	62	0.960009	14	30
40	0.280015	46	1684	53	1671	14	7123	60	2837	62	0.959996	13	20
50	0062	47	1736	52	1686	15	7064	59	2775	62	9982	14	10
16 0	0.280108	46	0.291789	53	1.041701	15	3.57005	59	3.42713	62	0.959968	14	**44** 0
10	0155	47	1842	53	1716	15	6946	59	2652	61	9955	13	50
20	0201	46	1894	52	1730	14	6886	60	2590	62	9941	14	40
30	0248	47	1947	53	1745	15	6827	59	2528	62	9928	13	30
40	0294	46	1999	52	1760	15	6768	59	2466	62	9914	14	20
50	0341	47	2052	53	1775	15	6708	60	2405	61	9900	14	10
17 0	0.280388	47	0.292105	53	1.041789	14	3.56649	59	3.42343	62	0.959887	13	**43** 0
10	0434	46	2157	52	1804	15	6590	59	2281	62	9873	14	50
20	0481	47	2210	53	1819	15	6531	59	2220	61	9860	13	40
30	0527	46	2263	53	1834	15	6472	59	2158	62	9846	14	30
40	0574	47	2315	52	1848	14	6413	59	2096	62	9833	13	20
50	0620	46	2368	53	1863	15	6354	59	2035	61	9819	14	10
18 0	0.280667	47	0.292420	52	1.041878	15	3.56294	60	3.41973	62	0.959805	14	**42** 0
10	0713	46	2473	53	1893	15	6235	59	1912	61	9792	13	50
20	0760	47	2526	53	1908	15	6176	59	1850	62	9778	14	40
30	0806	46	2578	52	1922	14	6117	59	1789	61	9764	14	30
40	0853	47	2631	53	1937	15	6058	59	1727	62	9751	13	20
50	0899	46	2684	53	1952	15	5999	59	1666	61	9737	14	10
19 0	0.280946	47	0.292736	52	1.041967	15	3.55940	59	3.41604	62	0.959724	13	**41** 0
10	0992	46	2789	53	1981	14	5881	59	1543	61	9710	14	50
20	1039	47	2842	53	1996	15	5823	58	1482	61	9696	14	40
30	1085	46	2894	52	2011	15	5764	59	1420	62	9683	13	30
40	1132	47	2947	53	2026	15	5705	59	1359	61	9669	14	20
50	1179	47	2999	52	2041	15	5646	59	1298	61	9655	14	10
20 0	0.281225	46	0.293052	53	1.042055	14	3.55587	59	3.41236	62	0.959642	13	**40** 0
	cos		cotg		cosec		sec		tang		sin		

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

58	
1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

60	
1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

62	
1	6.2
2	12.4
3	18.6
4	24.8
5	31.0
6	37.2
7	43.4
8	49.6
9	55.8

64	
1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

73°

16°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.281225		0.293052		1.042055		3·55587		3·41236		0.959642		**40′** 0″
10	1272	47	3105	53	2070	15	5528	59	1175	61	9628	14	50
20	1318	46	3157	52	2085	15	5469	59	1114	61	9615	13	40
30	1365	47	3210	53	2100	15	5411	58	1052	62	9601	14	30
40	1411	46	3263	53	2115	15	5352	59	0991	61	9587	14	20
50	1458	47	3315	52	2129	14	5293	59	0930	61	9574	13	10
21 0	0.281504	46	0.293368	53	1.042144	15	3·55234	59	3·40869	61	0.959560	14	**39** 0
10	1551	47	3421	53	2159	15	5176	58	0808	61	9546	14	50
20	1597	46	3473	52	2174	15	5117	59	0746	62	9533	13	40
30	1644	47	3526	53	2189	15	5058	59	0685	61	9519	14	30
40	1690	46	3579	53	2204	15	5000	58	0624	61	9505	14	20
50	1737	47	3631	52	2218	14	4941	59	0563	61	9492	13	10
22 0	0.281783	46	0.293684	53	1.042233	15	3·54883	58	3·40502	61	0.959478	14	**38** 0
10	1830	47	3737	53	2248	15	4824	59	0441	61	9464	14	50
20	1876	46	3789	52	2263	15	4766	58	0380	61	9451	13	40
30	1923	47	3842	53	2278	15	4707	59	0319	61	9437	14	30
40	1969	46	3895	53	2293	15	4648	59	0258	61	9423	14	20
50	2016	47	3947	52	2308	15	4590	58	0197	61	9410	13	10
23 0	0.282062	46	0.294000	53	1.042322	14	3·54531	59	3·40136	61	0.959396	14	**37** 0
10	2109	47	4053	53	2337	15	4473	58	0075	61	9382	14	50
20	2155	46	4105	52	2352	15	4415	58	3·40014	61	9369	13	40
30	2202	47	4158	53	2367	15	4356	59	3·39953	61	9355	14	30
40	2248	46	4211	53	2382	15	4298	58	9893	60	9341	14	20
50	2295	47	4263	52	2397	15	4239	59	9832	61	9328	13	10
24 0	0.282341	46	0.294316	53	1.042412	15	3·54181	58	3·39771	61	0.959314	14	**36** 0
10	2388	47	4369	53	2426	14	4123	58	9710	61	9300	14	50
20	2434	46	4421	52	2441	15	4064	59	9649	61	9287	13	40
30	2481	47	4474	53	2456	15	4006	58	9588	61	9273	14	30
40	2527	46	4527	53	2471	15	3948	58	9528	60	9259	14	20
50	2574	47	4579	52	2486	15	3890	58	9467	61	9246	13	10
25 0	0.282620	46	0.294632	53	1.042501	15	3·53831	59	3·39406	61	0.959232	14	**35** 0
10	2667	47	4685	53	2516	15	3773	58	9346	60	9218	14	50
20	2714	47	4738	53	2531	15	3715	58	9285	61	9204	14	40
30	2760	46	4790	52	2546	15	3657	58	9224	61	9191	13	30
40	2807	47	4843	53	2560	14	3599	58	9164	60	9177	14	20
50	2853	46	4896	53	2575	15	3541	58	9103	61	9163	14	10
26 0	0.282900	47	0.294948	52	1.042590	15	3·53482	59	3·39042	61	0.959150	13	**34** 0
10	2946	46	5001	53	2605	15	3424	58	8982	60	9136	14	50
20	2993	47	5054	53	2620	15	3366	58	8921	61	9122	14	40
30	3039	46	5106	52	2635	15	3308	58	8861	60	9108	14	30
40	3086	47	5159	53	2650	15	3250	58	8800	61	9095	13	20
50	3132	46	5212	53	2665	15	3192	58	8740	60	9081	14	10
27 0	0.283179	47	0.295265	53	1.042680	15	3·53134	58	3·38679	61	0.959067	14	**33** 0
10	3225	46	5317	52	2695	15	3076	58	8619	60	9053	14	50
20	3272	47	5370	53	2710	15	3018	58	8559	60	9040	13	40
30	3318	46	5423	53	2725	15	2960	58	8498	61	9026	14	30
40	3364	46	5475	52	2740	15	2902	58	8438	60	9012	14	20
50	3411	47	5528	53	2754	14	2844	58	8377	61	8999	13	10
28 0	0.283457	46	0.295581	53	1.042769	15	3·52787	57	3·38317	60	0.958985	14	**32** 0
10	3504	47	5633	52	2784	15	2729	58	8257	60	8971	14	50
20	3550	46	5686	53	2799	15	2671	58	8196	61	8957	14	40
30	3597	47	5739	53	2814	15	2613	58	8136	60	8944	13	30
40	3643	46	5792	53	2829	15	2555	58	8076	60	8930	14	20
50	3690	47	5844	52	2844	15	2498	57	8016	60	8916	14	10
29 0	0.283736	46	0.295897	53	1.042859	15	3·52440	58	3·37955	61	0.958902	14	**31** 0
10	3783	47	5950	53	2874	15	2382	58	7895	60	8889	13	50
20	3829	46	6003	53	2889	15	2324	58	7835	60	8875	14	40
30	3876	47	6055	52	2904	15	2267	57	7775	60	8861	14	30
40	3922	46	6108	53	2919	15	2209	58	7715	60	8847	14	20
50	3969	47	6161	53	2934	15	2151	58	7654	61	8834	13	10
30 0	0.284015	46	0.296213	52	1.042949	15	3·52094	57	3·37594	60	0.958820	14	**30** 0
	cos		cotg		cosec		sec		tang		sin		

13

1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

15

1	1.5
2	3.0
3	4.5
4	6.0
5	7.5
6	9.0
7	10.5
8	12.0
9	13.5

46

1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52

1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

56

1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

58

1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

60

1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

61

1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

73°

16°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.284015		0.296213		1.042949		3.52094		3.37594		0.958820		**30′** 0″
10	4062	47	6266	53	2964	15	2036	58	7534	60	8806	14	50
20	4108	46	6319	53	2979	15	1978	58	7474	60	8792	14	40
30	4155	47	6372	53	2994	15	1921	57	7414	60	8778	14	30
40	4201	46	6424	52	3009	15	1863	58	7354	60	8765	13	20
50	4248	47	6477	53	3024	15	1806	57	7294	60	8751	14	10
31 0	0.284294	46	0.296530	53	1.043039	15	3.51748	58	3.37234	60	0.958737	14	**29** 0
10	4341	47	6583	53	3054	15	1691	57	7174	60	8723	14	50
20	4387	46	6635	52	3069	15	1633	58	7114	60	8710	13	40
30	4434	47	6688	53	3084	15	1576	57	7054	60	8696	14	30
40	4480	46	6741	53	3099	15	1518	58	6994	60	8682	14	20
50	4527	47	6794	53	3114	15	1461	57	6934	60	8668	14	10
32 0	0.284573	46	0.296846	52	1.043129	15	3.51404	57	3.36875	59	0.958654	14	**28** 0
10	4620	47	6899	53	3144	15	1346	58	6815	60	8641	13	50
20	4666	46	6952	53	3159	15	1289	57	6755	60	8627	14	40
30	4713	47	7005	53	3174	15	1231	58	6695	60	8613	14	30
40	4759	46	7057	52	3189	15	1174	57	6635	60	8599	14	20
50	4805	46	7110	53	3204	15	1117	57	6575	60	8585	14	10
33 0	0.284852	47	0.297163	53	1.043219	15	3.51060	57	3.36516	59	0.958572	13	**27** 0
10	4898	46	7216	53	3234	15	1002	58	6456	60	8558	14	50
20	4945	47	7269	53	3249	15	0945	57	6396	60	8544	14	40
30	4991	46	7321	52	3264	15	0888	57	6337	59	8530	14	30
40	5038	47	7374	53	3279	15	0831	57	6277	60	8516	14	20
50	5084	46	7427	53	3294	15	0773	58	6217	60	8502	14	10
34 0	0.285131	47	0.297480	53	1.043309	15	3.50716	57	3.36158	59	0.958489	13	**26** 0
10	5177	46	7532	52	3324	15	0659	57	6098	60	8475	14	50
20	5224	47	7585	53	3339	15	0602	57	6038	60	8461	14	40
30	5270	46	7638	53	3354	15	0545	57	5979	59	8447	14	30
40	5317	47	7691	53	3369	15	0488	57	5919	60	8433	14	20
50	5363	46	7743	52	3384	15	0431	57	5860	59	8419	14	10
35 0	0.285410	47	0.297796	53	1.043400	16	3.50374	57	3.35800	60	0.958406	13	**25** 0
10	5456	46	7849	53	3415	15	0317	57	5741	59	8392	14	50
20	5503	47	7902	53	3430	15	0260	57	5681	60	8378	14	40
30	5549	46	7955	53	3445	15	0203	57	5622	59	8364	14	30
40	5595	46	8007	52	3460	15	0146	57	5562	60	8350	14	20
50	5642	47	8060	53	3475	15	0089	57	5503	59	8336	14	10
36 0	0.285688	46	0.298113	53	1.043490	15	3.50032	57	3.35443	60	0.958323	13	**24** 0
10	5735	47	8166	53	3505	15	3.49975	57	5384	59	8309	14	50
20	5781	46	8219	53	3520	15	9918	57	5325	59	8295	14	40
30	5828	47	8271	52	3535	15	9861	57	5265	60	8281	14	30
40	5874	46	8324	53	3550	15	9804	57	5206	59	8267	14	20
50	5921	47	8377	53	3565	15	9747	57	5147	59	8253	14	10
37 0	0.285967	46	0.298430	53	1.043581	16	3.49691	56	3.35087	60	0.958239	14	**23** 0
10	6014	47	8483	53	3596	15	9634	57	5028	59	8226	13	50
20	6060	46	8535	52	3611	15	9577	57	4969	59	8212	14	40
30	6106	46	8588	53	3626	15	9520	57	4910	59	8198	14	30
40	6153	47	8641	53	3641	15	9463	57	4850	60	8184	14	20
50	6199	46	8694	53	3656	15	9407	56	4791	59	8170	14	10
38 0	0.286246	47	0.298747	53	1.043671	15	3.49350	57	3.34732	59	0.958156	14	**22** 0
10	6292	46	8799	52	3686	15	9293	57	4673	59	8142	14	50
20	6339	47	8852	53	3701	15	9237	56	4614	59	8128	14	40
30	6385	46	8905	53	3717	16	9180	57	4554	60	8115	13	30
40	6432	47	8958	53	3732	15	9123	57	4495	59	8101	14	20
50	6478	46	9011	53	3747	15	9067	56	4436	59	8087	14	10
39 0	0.286525	47	0.299063	52	1.043762	15	3.49010	57	3.34377	59	0.958073	14	**21** 0
10	6571	46	9116	53	3777	15	8954	56	4318	59	8059	14	50
20	6617	46	9169	53	3792	15	8897	57	4259	59	8045	14	40
30	6664	47	9222	53	3807	15	8841	56	4200	59	8031	14	30
40	6710	46	9275	53	3822	15	8784	57	4141	59	8017	14	20
50	6757	47	9328	53	3838	16	8728	56	4082	59	8003	14	10
40 0	0.286803	46	0.299380	52	1.043853	15	3.48671	57	3.34023	59	0.957990	13	**20** 0
	cos		cotg		cosec		sec		tang		sin		

14		16		47		53		57		59		60		62	
1	1.4	1	1.6	1	4.7	1	5.3	1	5.7	1	5.9	1	6.0	1	6.2
2	2.8	2	3.2	2	9.4	2	10.6	2	11.4	2	11.8	2	12.0	2	12.4
3	4.2	3	4.8	3	14.1	3	15.9	3	17.1	3	17.7	3	18.0	3	18.6
4	5.6	4	6.4	4	18.8	4	21.2	4	22.8	4	23.6	4	24.0	4	24.8
5	7.0	5	8.0	5	23.5	5	26.5	5	28.5	5	29.5	5	30.0	5	31.0
6	8.4	6	9.6	6	28.2	6	31.8	6	34.2	6	35.4	6	36.0	6	37.2
7	9.8	7	11.2	7	32.9	7	37.1	7	39.9	7	41.3	7	42.0	7	43.4
8	11.2	8	12.8	8	37.6	8	42.4	8	45.6	8	47.2	8	48.0	8	49.6
9	12.6	9	14.4	9	42.3	9	47.7	9	51.3	9	53.1	9	54.0	9	55.8

73°

16°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.286803		0.299380		1.043853		3.48671		3.34023		0.957990		**20′** 0″
10	6850	47	9433	53	3868	15	8615	56	3964	59	7976	14	50
20	6896	46	9486	53	3883	15	8558	57	3905	59	7962	14	40
30	6943	47	9539	53	3898	15	8502	56	3847	58	7948	14	30
40	6989	46	9592	53	3913	15	8445	57	3788	59	7934	14	20
50	7035	46	9644	52	3929	16	8389	56	3729	59	7920	14	10
41 0	0.287082	47	0.299697	53	1.043944	15	3.48333	56	3.33670	59	0.957906	14	**19** 0
10	7128	46	9750	53	3959	15	8276	57	3611	59	7892	14	50
20	7175	47	9803	53	3974	15	8220	56	3552	59	7878	14	40
30	7221	46	9856	53	3989	15	8164	56	3494	58	7864	14	30
40	7268	47	9909	53	4004	15	8107	57	3435	59	7850	14	20
50	7314	46	0.299962	53	4020	16	8051	56	3376	59	7836	14	10
42 0	0.287361	47	0.300014	52	1.044035	15	3.47995	56	3.33317	59	0.957822	14	**18** 0
10	7407	46	0067	53	4050	15	7939	56	3259	58	7809	13	50
20	7453	46	0120	53	4065	15	7882	57	3200	59	7795	14	40
30	7500	47	0173	53	4080	15	7826	56	3141	59	7781	14	30
40	7546	46	0226	53	4096	16	7770	56	3083	58	7767	14	20
50	7593	47	0279	53	4111	15	7714	56	3024	59	7753	14	10
43 0	0.287639	46	0.300331	52	1.044126	15	3.47658	56	3.32965	59	0.957739	14	**17** 0
10	7686	47	0384	53	4141	15	7602	56	2907	58	7725	14	50
20	7732	46	0437	53	4156	15	7546	56	2848	59	7711	14	40
30	7778	46	0490	53	4172	16	7490	56	2790	58	7697	14	30
40	7825	47	0543	53	4187	15	7434	56	2731	59	7683	14	20
50	7871	46	0596	53	4202	15	7377	57	2673	58	7669	14	10
44 0	0.287918	47	0.300649	53	1.044217	15	3.47321	56	3.32614	59	0.957655	14	**16** 0
10	7964	46	0701	52	4232	15	7265	56	2556	58	7641	14	50
20	8011	47	0754	53	4248	16	7209	56	2497	59	7627	14	40
30	8057	46	0807	53	4263	15	7154	55	2439	58	7613	14	30
40	8103	46	0860	53	4278	15	7098	56	2380	59	7599	14	20
50	8150	47	0913	53	4293	15	7042	56	2322	58	7585	14	10
45 0	0.288196	46	0.300966	53	1.044309	16	3.46986	56	3.32264	58	0.957571	14	**15** 0
10	8243	47	1019	53	4324	15	6930	56	2205	59	7557	14	50
20	8289	46	1072	53	4339	15	6874	56	2147	58	7543	14	40
30	8336	47	1124	52	4354	15	6818	56	2089	58	7529	14	30
40	8382	46	1177	53	4370	16	6762	56	2030	59	7515	14	20
50	8428	46	1230	53	4385	15	6707	55	1972	58	7501	14	10
46 0	0.288475	47	0.301283	53	1.044400	15	3.46651	56	3.31914	58	0.957487	14	**14** 0
10	8521	46	1336	53	4415	15	6595	56	1855	59	7474	13	50
20	8568	47	1389	53	4431	16	6539	56	1797	58	7460	14	40
30	8614	46	1442	53	4446	15	6483	56	1739	58	7446	14	30
40	8660	46	1495	53	4461	15	6428	55	1681	58	7432	14	20
50	8707	47	1548	53	4476	15	6372	56	1623	58	7418	14	10
47 0	0.288753	46	0.301600	52	1.044492	16	3.46316	56	3.31565	58	0.957404	14	**13** 0
10	8800	47	1653	53	4507	15	6261	55	1506	59	7390	14	50
20	8846	46	1706	53	4522	15	6205	56	1448	58	7376	14	40
30	8893	47	1759	53	4537	15	6149	56	1390	58	7362	14	30
40	8939	46	1812	53	4553	16	6094	55	1332	58	7348	14	20
50	8985	46	1865	53	4568	15	6038	56	1274	58	7334	14	10
48 0	0.289032	47	0.301918	53	1.044583	15	3.45983	55	3.31216	58	0.957319	15	**12** 0
10	9078	46	1971	53	4599	16	5927	56	1158	58	7305	14	50
20	9125	47	2024	53	4614	15	5872	55	1100	58	7291	14	40
30	9171	46	2077	53	4629	15	5816	56	1042	58	7277	14	30
40	9217	46	2129	52	4645	16	5761	55	0984	58	7263	14	20
50	9264	47	2182	53	4660	15	5705	56	0926	58	7249	14	10
49 0	0.289310	46	0.302235	53	1.044675	15	3.45650	55	3.30868	58	0.957235	14	**11** 0
10	9357	47	2288	53	4690	15	5594	56	0810	58	7221	14	50
20	9403	46	2341	53	4706	16	5539	55	0752	58	7207	14	40
30	9449	46	2394	53	4721	15	5483	56	0694	58	7193	14	30
40	9496	47	2447	53	4736	15	5428	55	0637	57	7179	14	20
50	9542	46	2500	53	4752	16	5373	55	0579	58	7165	14	10
50 0	0.289589	47	0.302553	53	1.044767	15	3.45317	56	3.30521	58	0.957151	14	**10** 0
	cos		cotg		cosec		sec		tang		sin		

13	
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1
8	10.4
9	11.7

15	
1	1.5
2	3.0
3	4.5
4	6.0
5	7.5
6	9.0
7	10.5
8	12.0
9	13.5

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

58	
1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

73°

16°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.289589		0.302553		1.044767		3.45317		3.30521		0.957151		**10′** 0″
10	9635	46	2606	53	4782	15	5262	55	0463	58	7137	14	50
20	9682	47	2659	53	4798	16	5207	55	0405	58	7123	14	40
30	9728	46	2711	52	4813	15	5151	56	0348	57	7109	14	30
40	9774	46	2764	53	4828	15	5096	55	0290	58	7095	14	20
50	9821	47	2817	53	4844	16	5041	55	0232	58	7081	14	10
51 0	0.289867	46	0.302870	53	1.044859	15	3.44986	55	3.30174	58	0.957067	14	**9** 0
10	9914	47	2923	53	4874	15	4930	56	0117	57	7053	14	50
20	0.289960	46	2976	53	4890	16	4875	55	0059	58	7039	14	40
30	0.290006	46	3029	53	4905	15	4820	55	3.30001	58	7025	14	30
40	0053	47	3082	53	4920	15	4765	55	3.29944	57	7011	14	20
50	0099	46	3135	53	4936	16	4710	55	9886	58	6997	14	10
52 0	0.290145	46	0.303188	53	1.044951	15	3.44655	55	3.29829	57	0.956983	14	**8** 0
10	0192	47	3241	53	4966	15	4600	55	9771	58	6968	15	50
20	0238	46	3294	53	4982	16	4544	56	9713	58	6954	14	40
30	0285	47	3347	53	4997	15	4489	55	9656	57	6940	14	30
40	0331	46	3400	53	5013	16	4434	55	9598	58	6926	14	20
50	0377	46	3453	53	5028	15	4379	55	9541	57	6912	14	10
53 0	0.290424	47	0.303506	53	1.045043	15	3.44324	55	3.29483	58	0.956898	14	**7** 0
10	0470	46	3558	52	5059	16	4269	55	9426	57	6884	14	50
20	0517	47	3611	53	5074	15	4214	55	9368	58	6870	14	40
30	0563	46	3664	53	5089	15	4159	55	9311	57	6856	14	30
40	0609	46	3717	53	5105	16	4104	55	9254	57	6842	14	20
50	0656	47	3770	53	5120	15	4050	54	9196	58	6828	14	10
54 0	0.290702	46	0.303823	53	1.045136	16	3.43995	55	3.29139	57	0.956814	14	**6** 0
10	0749	47	3876	53	5151	15	3940	55	9081	58	6799	15	50
20	0795	46	3929	53	5166	15	3885	55	9024	57	6785	14	40
30	0841	46	3982	53	5182	16	3830	55	8967	57	6771	14	30
40	0888	47	4035	53	5197	15	3775	55	8909	58	6757	14	20
50	0934	46	4088	53	5213	16	3720	55	8852	57	6743	14	10
55 0	0.290981	47	0.304141	53	1.045228	15	3.43666	54	3.28795	57	0.956729	14	**5** 0
10	1027	46	4194	53	5243	15	3611	55	8738	57	6715	14	50
20	1073	46	4247	53	5259	16	3556	55	8680	58	6701	14	40
30	1120	47	4300	53	5274	15	3501	55	8623	57	6687	14	30
40	1166	46	4353	53	5290	16	3447	54	8566	57	6673	14	20
50	1212	46	4406	53	5305	15	3392	55	8509	57	6658	15	10
56 0	0.291259	47	0.304459	53	1.045321	16	3.43337	55	3.28452	57	0.956644	14	**4** 0
10	1305	46	4512	53	5336	15	3283	54	8395	57	6630	14	50
20	1352	47	4565	53	5351	15	3228	55	8337	58	6616	14	40
30	1398	46	4618	53	5367	16	3173	55	8280	57	6602	14	30
40	1444	46	4671	53	5382	15	3119	54	8223	57	6588	14	20
50	1491	47	4724	53	5398	16	3064	55	8166	57	6574	14	10
57 0	0.291537	46	0.304777	53	1.045413	15	3.43010	54	3.28109	57	0.956560	14	**3** 0
10	1583	46	4830	53	5429	16	2955	55	8052	57	6545	15	50
20	1630	47	4883	53	5444	15	2900	55	7995	57	6531	14	40
30	1676	46	4936	53	5460	16	2846	54	7938	57	6517	14	30
40	1723	47	4989	53	5475	15	2791	55	7881	57	6503	14	20
50	1769	46	5042	53	5491	16	2737	54	7824	57	6489	14	10
58 0	0.291815	46	0.305095	53	1.045506	15	3.42683	54	3.27767	57	0.956475	14	**2** 0
10	1862	47	5148	53	5521	15	2628	55	7710	57	6461	14	50
20	1908	46	5201	53	5537	16	2574	54	7653	57	6446	15	40
30	1954	46	5254	53	5552	15	2519	55	7596	57	6432	14	30
40	2001	47	5307	53	5568	16	2465	54	7540	56	6418	14	20
50	2047	46	5360	53	5583	15	2410	55	7483	57	6404	14	10
59 0	0.292094	47	0.305413	53	1.045599	16	3.42356	54	3.27426	57	0.956390	14	**1** 0
10	2140	46	5466	53	5614	15	2302	54	7369	57	6376	14	50
20	2186	46	5519	53	5630	16	2247	55	7312	57	6361	15	40
30	2233	47	5572	53	5645	15	2193	54	7255	57	6347	14	30
40	2279	46	5625	53	5661	16	2139	54	7199	56	6333	14	20
50	2325	46	5678	53	5676	15	2085	54	7142	57	6319	14	10
60 0	0.292372	47	0.305731	53	1.045692	16	3.42030	55	3.27085	57	0.956305	14	**0** 0
	cos		cotg		cosec		sec		tang		sin		

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

59	
1	5.9
2	11.8
3	17.7
4	23.6
5	29.5
6	35.4
7	41.3
8	47.2
9	53.1

73°

17°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.292372		0.305731		1.045692		3.42030		3.27085		0.956305		**60′** 0″
10	2418	46	5784	53	5707	15	1976	54	7029	56	6291	14	50
20	2464	46	5837	53	5723	16	1922	54	6972	57	6276	15	40
30	2511	47	5890	53	5738	15	1868	54	6915	57	6262	14	30
40	2557	46	5943	53	5754	16	1814	54	6859	56	6248	14	20
50	2604	47	5996	53	5769	15	1759	55	6802	57	6234	14	10
1 0	0.292650	46	0.306049	53	1.045785	16	3.41705	54	3.26745	57	0.956220	14	**59** 0
10	2696	46	6102	53	5800	15	1651	54	6689	56	6205	15	50
20	2743	47	6155	53	5816	16	1597	54	6632	57	6191	14	40
30	2789	46	6208	53	5831	15	1543	54	6576	56	6177	14	30
40	2835	46	6261	53	5847	16	1489	54	6519	57	6163	14	20
50	2882	47	6314	53	5862	15	1435	54	6462	57	6149	14	10
2 0	0.292928	46	0.306367	53	1.045878	16	3.41381	54	3.26406	56	0.956134	15	**58** 0
10	2974	46	6420	53	5893	15	1327	54	6349	57	6120	14	50
20	3021	47	6473	53	5909	16	1273	54	6293	56	6106	14	40
30	3067	46	6526	53	5925	16	1219	54	6237	56	6092	14	30
40	3113	46	6579	53	5940	15	1165	54	6180	57	6078	14	20
50	3160	47	6632	53	5956	16	1111	54	6124	56	6063	15	10
3 0	0.293206	46	0.306685	53	1.045971	15	3.41057	54	3.26067	57	0.956049	14	**57** 0
10	3252	46	6738	53	5987	16	1003	54	6011	56	6035	14	50
20	3299	47	6791	53	6002	15	0949	54	5955	56	6021	14	40
30	3345	46	6844	53	6018	16	0895	54	5898	57	6007	14	30
40	3392	47	6897	53	6033	15	0841	54	5842	56	5992	15	20
50	3438	46	6950	53	6049	16	0788	53	5786	56	5978	14	10
4 0	0.293484	46	0.307003	53	1.046065	16	3.40734	54	3.25729	57	0.955964	14	**56** 0
10	3531	47	7056	53	6080	15	0680	54	5673	56	5950	14	50
20	3577	46	7110	54	6096	16	0626	54	5617	56	5935	15	40
30	3623	46	7163	53	6111	15	0572	54	5560	57	5921	14	30
40	3670	47	7216	53	6127	16	0519	53	5504	56	5907	14	20
50	3716	46	7269	53	6142	15	0465	54	5448	56	5893	14	10
5 0	0.293762	46	0.307322	53	1.046158	16	3.40411	54	3.25392	56	0.955879	14	**55** 0
10	3809	47	7375	53	6174	16	0358	53	5336	56	5864	15	50
20	3855	46	7428	53	6189	15	0304	54	5280	56	5850	14	40
30	3901	46	7481	53	6205	16	0250	54	5223	57	5836	14	30
40	3948	47	7534	53	6220	15	0197	53	5167	56	5822	14	20
50	3994	46	7587	53	6236	16	0143	54	5111	56	5807	15	10
6 0	0.294040	46	0.307640	53	1.046252	16	3.40089	54	3.25055	56	0.955793	14	**54** 0
10	4087	47	7693	53	6267	15	3.40036	53	4999	56	5779	14	50
20	4133	46	7746	53	6283	16	3.39982	54	4943	56	5764	15	40
30	4179	46	7799	53	6298	15	9929	53	4887	56	5750	14	30
40	4226	47	7852	53	6314	16	9875	54	4831	56	5736	14	20
50	4272	46	7906	54	6330	16	9822	53	4775	56	5722	14	10
7 0	0.294318	46	0.307959	53	1.046345	15	3.39768	54	3.24719	56	0.955707	15	**53** 0
10	4365	47	8012	53	6361	16	9715	53	4663	56	5693	14	50
20	4411	46	8065	53	6377	16	9661	54	4607	56	5679	14	40
30	4457	46	8118	53	6392	15	9608	53	4551	56	5665	14	30
40	4504	47	8171	53	6408	16	9554	54	4495	56	5650	15	20
50	4550	46	8224	53	6423	15	9501	53	4439	56	5636	14	10
8 0	0.294596	46	0.308277	53	1.046439	16	3.39448	53	3.24383	56	0.955622	14	**52** 0
10	4643	47	8330	53	6455	16	9394	54	4328	55	5608	14	50
20	4689	46	8383	53	6470	15	9341	53	4272	56	5593	15	40
30	4735	46	8436	53	6486	16	9287	54	4216	56	5579	14	30
40	4782	47	8489	53	6502	16	9234	53	4160	56	5565	14	20
50	4828	46	8543	54	6517	15	9181	53	4104	56	5550	15	10
9 0	0.294874	46	0.308596	53	1.046533	16	3.39128	53	3.24049	55	0.955536	14	**51** 0
10	4921	47	8649	53	6549	16	9074	54	3993	56	5522	14	50
20	4967	46	8702	53	6564	15	9021	53	3937	56	5507	15	40
30	5013	46	8755	53	6580	16	8968	53	3881	56	5493	14	30
40	5060	47	8808	53	6596	16	8915	53	3826	55	5479	14	20
50	5106	46	8861	53	6611	15	8861	54	3770	56	5465	14	10
10 0	0.295152	46	0.308914	53	1.046627	16	3.38808	53	3.23714	56	0.955450	15	**50** 0
	cos		cotg		cosec		sec		tang		sin		

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

72°

17°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.295152		0.308914		1.046627		3.38808		3.23714		0.955450		**50′** 0″
10	5199	47	8967	53	6643	16	8755	53	3659	55	5436	14	50
20	5245	46	9021	54	6658	15	8702	53	3603	56	5422	14	40
30	5291	46	9074	53	6674	16	8649	53	3547	56	5407	15	30
40	5338	47	9127	53	6690	16	8596	53	3492	55	5393	14	20
50	5384	46	9180	53	6705	15	8543	53	3436	56	5379	14	10
11 0	0.295430	46	0.309233	53	1.046721	16	3.38489	54	3.23381	55	0.955364	15	**49** 0
10	5476	46	9286	53	6737	16	8436	53	3325	56	5350	14	50
20	5523	47	9339	53	6752	15	8383	53	3270	55	5336	14	40
30	5569	46	9392	53	6768	16	8330	53	3214	56	5321	15	30
40	5615	46	9445	53	6784	16	8277	53	3159	55	5307	14	20
50	5662	47	9499	54	6800	16	8224	53	3103	56	5293	14	10
12 0	0.295708	46	0.309552	53	1.046815	15	3.38171	53	3.23048	55	0.955278	15	**48** 0
10	5754	46	9605	53	6831	16	8118	53	2992	56	5264	14	50
20	5801	47	9658	53	6847	16	8065	53	2937	55	5250	14	40
30	5847	46	9711	53	6862	15	8013	52	2882	55	5235	15	30
40	5893	46	9764	53	6878	16	7960	53	2826	56	5221	14	20
50	5940	47	9817	53	6894	16	7907	53	2771	55	5207	14	10
13 0	0.295986	46	0.309870	53	1.046910	16	3.37854	53	3.22715	56	0.955192	15	**47** 0
10	6032	46	9924	54	6925	15	7801	53	2660	55	5178	14	50
20	6079	47	0.309977	53	6941	16	7748	53	2605	55	5164	14	40
30	6125	46	0.310030	53	6957	16	7695	53	2550	55	5149	15	30
40	6171	46	0083	53	6973	16	7643	52	2494	56	5135	14	20
50	6217	46	0136	53	6988	15	7590	53	2439	55	5121	14	10
14 0	0.296264	47	0.310189	53	1.047004	16	3.37537	53	3.22384	55	0.955106	15	**46** 0
10	6310	46	0242	53	7020	16	7484	53	2329	55	5092	14	50
20	6356	46	0296	54	7036	16	7432	52	2273	56	5077	15	40
30	6403	47	0349	53	7051	15	7379	53	2218	55	5063	14	30
40	6449	46	0402	53	7067	16	7326	53	2163	55	5049	14	20
50	6495	46	0455	53	7083	16	7274	52	2108	55	5034	15	10
15 0	0.296542	47	0.310508	53	1.047099	16	3.37221	53	3.22053	55	0.955020	14	**45** 0
10	6588	46	0561	53	7114	15	7168	53	1998	55	5006	14	50
20	6634	46	0615	54	7130	16	7116	52	1942	56	4991	15	40
30	6680	46	0668	53	7146	16	7063	53	1887	55	4977	14	30
40	6727	47	0721	53	7162	16	7010	53	1832	55	4962	15	20
50	6773	46	0774	53	7177	15	6958	52	1777	55	4948	14	10
16 0	0.296819	46	0.310827	53	1.047193	16	3.36905	53	3.21722	55	0.954934	14	**44** 0
10	6866	47	0880	53	7209	16	6853	52	1667	55	4919	15	50
20	6912	46	0934	54	7225	16	6800	53	1612	55	4905	14	40
30	6958	46	0987	53	7241	16	6748	52	1557	55	4890	15	30
40	7005	47	1040	53	7256	15	6695	53	1502	55	4876	14	20
50	7051	46	1093	53	7272	16	6643	52	1447	55	4862	14	10
17 0	0.297097	46	0.311146	53	1.047288	16	3.36590	53	3.21392	55	0.954847	15	**43** 0
10	7143	46	1199	53	7304	16	6538	52	1337	55	4833	14	50
20	7190	47	1253	54	7320	16	6485	53	1282	55	4818	15	40
30	7236	46	1306	53	7335	15	6433	52	1228	54	4804	14	30
40	7282	46	1359	53	7351	16	6381	52	1173	55	4790	14	20
50	7329	47	1412	53	7367	16	6328	53	1118	55	4775	15	10
18 0	0.297375	46	0.311465	53	1.047383	16	3.36276	52	3.21063	55	0.954761	14	**42** 0
10	7421	46	1519	54	7399	16	6224	52	1008	55	4746	15	50
20	7467	46	1572	53	7414	15	6171	53	0953	55	4732	14	40
30	7514	47	1625	53	7430	16	6119	52	0899	54	4718	14	30
40	7560	46	1678	53	7446	16	6067	52	0844	55	4703	15	20
50	7606	46	1731	53	7462	16	6014	53	0789	55	4689	14	10
19 0	0.297653	47	0.311784	53	1.047478	16	3.35962	52	3.20734	55	0.954674	15	**41** 0
10	7699	46	1838	54	7494	16	5910	52	0680	54	4660	14	50
20	7745	46	1891	53	7509	15	5858	52	0625	55	4645	15	40
30	7791	46	1944	53	7525	16	5805	53	0570	55	4631	14	30
40	7838	47	1997	53	7541	16	5753	52	0516	54	4617	14	20
50	7884	46	2050	53	7557	16	5701	52	0461	55	4602	15	10
20 0	0.297930	46	0.312104	54	1.047573	16	3.35649	52	3.20406	55	0.954588	14	**40** 0
	cos		cotg		cosec		sec		tang		sin		

15	
1	1.5
2	3.0
3	4.5
4	6.0
5	7.5
6	9.0
7	10.5
8	12.0
9	13.5

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

72°

17°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.297930		0.312104		1.047573		3.35649		3.20406		0.954588		**40′** 0″
10	7977	47	2157	53	7589	16	5597	52	0352	54	4573	15	50
20	8023	46	2210	53	7604	15	5545	52	0297	55	4559	14	40
30	8069	46	2263	53	7620	16	5493	52	0243	54	4544	15	30
40	8115	46	2316	53	7636	16	5441	52	0188	55	4530	14	20
50	8162	47	2370	54	7652	16	5389	52	0133	55	4515	15	10
21 0	0.298208	46	0.312423	53	1.047668	16	3.35336	53	3.20079	54	0.954501	14	**39** 0
10	8254	46	2476	53	7684	16	5284	52	3.20024	55	4486	15	50
20	8300	46	2529	53	7700	16	5232	52	3.19970	54	4472	14	40
30	8347	47	2583	54	7716	16	5180	52	9915	55	4458	14	30
40	8393	46	2636	53	7731	15	5128	52	9861	54	4443	15	20
50	8439	46	2689	53	7747	16	5076	52	9807	54	4429	14	10
22 0	0.298486	47	0.312742	53	1.047763	16	3.35025	51	3.19752	55	0.954414	15	**38** 0
10	8532	46	2795	53	7779	16	4973	52	9698	54	4400	14	50
20	8578	46	2849	54	7795	16	4921	52	9643	55	4385	15	40
30	8624	46	2902	53	7811	16	4869	52	9589	54	4371	14	30
40	8671	47	2955	53	7827	16	4817	52	9535	54	4356	15	20
50	8717	46	3008	53	7843	16	4765	52	9480	55	4342	14	10
23 0	0.298763	46	0.313062	54	1.047859	16	3.34713	52	3.19426	54	0.954327	15	**37** 0
10	8809	46	3115	53	7874	15	4661	52	9372	54	4313	14	50
20	8856	47	3168	53	7890	16	4610	51	9317	55	4298	15	40
30	8902	46	3221	53	7906	16	4558	52	9263	54	4284	14	30
40	8948	46	3275	54	7922	16	4506	52	9209	54	4269	15	20
50	8995	47	3328	53	7938	16	4454	52	9155	54	4255	14	10
24 0	0.299041	46	0.313381	53	1.047954	16	3.34403	51	3.19100	55	0.954240	15	**36** 0
10	9087	46	3434	53	7970	16	4351	52	9046	54	4226	14	50
20	9133	46	3487	53	7986	16	4299	52	8992	54	4211	15	40
30	9180	47	3541	54	8002	16	4247	52	8938	54	4197	14	30
40	9226	46	3594	53	8018	16	4196	51	8884	54	4182	15	20
50	9272	46	3647	53	8034	16	4144	52	8830	54	4168	14	10
25 0	0.299318	46	0.313700	53	1.048050	16	3.34092	52	3.18775	55	0.954153	15	**35** 0
10	9365	47	3754	54	8066	16	4041	51	8721	54	4139	14	50
20	9411	46	3807	53	8082	16	3989	52	8667	54	4124	15	40
30	9457	46	3860	53	8097	15	3938	51	8613	54	4110	14	30
40	9503	46	3914	54	8113	16	3886	52	8559	54	4095	15	20
50	9550	47	3967	53	8129	16	3834	52	8505	54	4081	14	10
26 0	0.299596	46	0.314020	53	1.048145	16	3.33783	51	3.18451	54	0.954066	15	**34** 0
10	9642	46	4073	53	8161	16	3731	52	8397	54	4052	14	50
20	9688	46	4127	54	8177	16	3680	51	8343	54	4037	15	40
30	9735	47	4180	53	8193	16	3628	52	8289	54	4023	14	30
40	9781	46	4233	53	8209	16	3577	51	8235	54	4008	15	20
50	9827	46	4286	53	8225	16	3525	52	8181	54	3994	14	10
27 0	0.299873	46	0.314340	54	1.048241	16	3.33474	51	3.18127	54	0.953979	15	**33** 0
10	9920	47	4393	53	8257	16	3423	51	8073	54	3964	15	50
20	0.299966	46	4446	53	8273	16	3371	52	8019	54	3950	14	40
30	0.300012	46	4499	53	8289	16	3320	51	7966	53	3935	15	30
40	0058	46	4553	54	8305	16	3268	52	7912	54	3921	14	20
50	0105	47	4606	53	8321	16	3217	51	7858	54	3906	15	10
28 0	0.300151	46	0.314659	53	1.048337	16	3.33166	51	3.17804	54	0.953892	14	**32** 0
10	0197	46	4713	54	8353	16	3114	52	7750	54	3877	15	50
20	0243	46	4766	53	8369	16	3063	51	7696	54	3863	14	40
30	0290	47	4819	53	8385	16	3012	51	7643	53	3848	15	30
40	0336	46	4872	53	8401	16	2961	51	7589	54	3834	14	20
50	0382	46	4926	54	8417	16	2909	52	7535	54	3819	15	10
29 0	0.300428	46	0.314979	53	1.048433	16	3.32858	51	3.17481	54	0.953804	15	**31** 0
10	0475	47	5032	53	8449	16	2807	51	7428	53	3790	14	50
20	0521	46	5086	54	8465	16	2756	51	7374	54	3775	15	40
30	0567	46	5139	53	8481	16	2704	52	7320	54	3761	14	30
40	0613	46	5192	53	8497	16	2653	51	7267	53	3746	15	20
50	0660	47	5245	53	8513	16	2602	51	7213	54	3732	14	10
30 0	0.300706	46	0.315299	54	1.048529	16	3.32551	51	3.17159	54	0.953717	15	**30** 0
	cos		cotg		cosec		sec		tang		sin		

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

50	
1	5.0
2	10.0
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4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

72°

17°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.300706		0.315299		1.048529		3.32551		3.17159		0.953717		**30′** 0″
10	0752	46	5352	53	8545	16	2500	51	7106	53	3702	15	50
20	0798	46	5405	53	8561	16	2449	51	7052	54	3688	14	40
30	0845	47	5459	54	8577	16	2398	51	6999	53	3673	15	30
40	0891	46	5512	53	8593	16	2347	51	6945	54	3659	14	20
50	0937	46	5565	53	8609	16	2295	52	6892	53	3644	15	10
31 0	0.300983	46	0.315619	54	1.048625	16	3.32244	51	3.16838	54	0.953629	15	**29** 0
10	1029	46	5672	53	8641	16	2193	51	6785	53	3615	14	50
20	1076	47	5725	53	8657	16	2142	51	6731	54	3600	15	40
30	1122	46	5779	54	8673	16	2091	51	6678	53	3586	14	30
40	1168	46	5832	53	8690	17	2040	51	6624	54	3571	15	20
50	1214	46	5885	53	8706	16	1989	51	6571	53	3556	15	10
32 0	0.301261	47	0.315939	54	1.048722	16	3.31939	50	3.16517	54	0.953542	14	**28** 0
10	1307	46	5992	53	8738	16	1888	51	6464	53	3527	15	50
20	1353	46	6045	53	8754	16	1837	51	6410	54	3513	14	40
30	1399	46	6098	53	8770	16	1786	51	6357	53	3498	15	30
40	1446	47	6152	54	8786	16	1735	51	6304	53	3483	15	20
50	1492	46	6205	53	8802	16	1684	51	6250	54	3469	14	10
33 0	0.301538	46	0.316258	53	1.048818	16	3.31633	51	3.16197	53	0.953454	15	**27** 0
10	1584	46	6312	54	8834	16	1582	51	6144	53	3440	14	50
20	1630	46	6365	53	8850	16	1532	50	6090	54	3425	15	40
30	1677	47	6418	53	8866	16	1481	51	6037	53	3410	15	30
40	1723	46	6472	54	8882	16	1430	51	5984	53	3396	14	20
50	1769	46	6525	53	8899	17	1379	51	5931	53	3381	15	10
34 0	0.301815	46	0.316578	53	1.048915	16	3.31328	51	3.15877	54	0.953366	15	**26** 0
10	1862	47	6632	54	8931	16	1278	50	5824	53	3352	14	50
20	1908	46	6685	53	8947	16	1227	51	5771	53	3337	15	40
30	1954	46	6739	54	8963	16	1176	51	5718	53	3323	14	30
40	2000	46	6792	53	8979	16	1126	50	5665	53	3308	15	20
50	2046	46	6845	53	8995	16	1075	51	5612	53	3293	15	10
35 0	0.302093	47	0.316899	54	1.049011	16	3.31024	51	3.15558	54	0.953279	14	**25** 0
10	2139	46	6952	53	9027	16	0974	50	5505	53	3264	15	50
20	2185	46	7005	53	9044	17	0923	51	5452	53	3249	15	40
30	2231	46	7059	54	9060	16	0872	51	5399	53	3235	14	30
40	2277	46	7112	53	9076	16	0822	50	5346	53	3220	15	20
50	2324	47	7165	53	9092	16	0771	51	5293	53	3205	15	10
36 0	0.302370	46	0.317219	54	1.049108	16	3.30721	50	3.15240	53	0.953191	14	**24** 0
10	2416	46	7272	53	9124	16	0670	51	5187	53	3176	15	50
20	2462	46	7325	53	9140	16	0620	50	5134	53	3161	15	40
30	2509	47	7379	54	9156	16	0569	51	5081	53	3147	14	30
40	2555	46	7432	53	9173	17	0519	50	5028	53	3132	15	20
50	2601	46	7486	54	9189	16	0468	51	4975	53	3117	15	10
37 0	0.302647	46	0.317539	53	1.049205	16	3.30418	50	3.14922	53	0.953103	14	**23** 0
10	2693	46	7592	53	9221	16	0367	51	4869	53	3088	15	50
20	2740	47	7646	54	9237	16	0317	50	4816	53	3073	15	40
30	2786	46	7699	53	9253	16	0267	50	4763	53	3059	14	30
40	2832	46	7752	53	9270	17	0216	51	4710	53	3044	15	20
50	2878	46	7806	54	9286	16	0166	50	4658	52	3029	15	10
38 0	0.302924	46	0.317859	53	1.049302	16	3.30115	51	3.14605	53	0.953015	14	**22** 0
10	2971	47	7913	54	9318	16	0065	50	4552	53	3000	15	50
20	3017	46	7966	53	9334	16	3.30015	50	4499	53	2985	15	40
30	3063	46	8019	53	9350	16	3.29964	51	4446	53	2971	14	30
40	3109	46	8073	54	9367	17	9914	50	4394	52	2956	15	20
50	3155	46	8126	53	9383	16	9864	50	4341	53	2941	15	10
39 0	0.303202	47	0.318179	53	1.049399	16	3.29814	50	3.14288	53	0.952926	15	**21** 0
10	3248	46	8233	54	9415	16	9763	51	4235	53	2912	14	50
20	3294	46	8286	53	9431	16	9713	50	4183	52	2897	15	40
30	3340	46	8340	54	9448	17	9663	50	4130	53	2882	15	30
40	3386	46	8393	53	9464	16	9613	50	4077	53	2868	14	20
50	3433	47	8446	53	9480	16	9563	50	4025	52	2853	15	10
40 0	0.303479	46	0.318500	54	1.049496	16	3.29512	51	3.13972	53	0.952838	15	**20** 0
	cos		cotg		cosec		sec		tang		sin		

15	
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2	3.0
3	4.5
4	6.0
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6	9.0
7	10.5
8	12.0
9	13.5

17	
1	1.7
2	3.4
3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

51	
1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

72°

17°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.303479		0.318500		1.049496		3.29512		3.13972		0.952838		**20′** 0″
10	3525	46	8553	53	9512	16	9462	50	3919	53	2823	15	50
20	3571	46	8607	54	9529	17	9412	50	3867	52	2809	14	40
30	3617	46	8660	53	9545	16	9362	50	3814	53	2794	15	30
40	3664	47	8713	53	9561	16	9312	50	3762	52	2779	15	20
50	3710	46	8767	54	9577	16	9262	50	3709	53	2765	14	10
41 0	0.303756	46	0.318820	53	1.049593	16	3.29212	50	3.13656	53	0.952750	15	**19** 0
10	3802	46	8874	54	9610	17	9162	50	3604	52	2735	15	50
20	3848	46	8927	53	9626	16	9112	50	3551	53	2720	15	40
30	3894	46	8980	53	9642	16	9062	50	3499	52	2706	14	30
40	3941	47	9034	54	9658	16	9012	50	3446	53	2691	15	20
50	3987	46	9087	53	9675	17	8962	50	3394	52	2676	15	10
42 0	0.304033	46	0.319141	54	1.049691	16	3.28912	50	3.13341	53	0.952661	15	**18** 0
10	4079	46	9194	53	9707	16	8862	50	3289	52	2647	14	50
20	4125	46	9248	54	9723	16	8812	50	3237	52	2632	15	40
30	4172	47	9301	53	9740	17	8762	50	3184	53	2617	15	30
40	4218	46	9354	53	9756	16	8712	50	3132	52	2603	14	20
50	4264	46	9408	54	9772	16	8662	50	3079	53	2588	15	10
43 0	0.304310	46	0.319461	53	1.049788	16	3.28612	50	3.13027	52	0.952573	15	**17** 0
10	4356	46	9515	54	9805	17	8562	50	2975	52	2558	15	50
20	4403	47	9568	53	9821	16	8512	50	2922	53	2543	15	40
30	4449	46	9622	54	9837	16	8463	49	2870	52	2529	14	30
40	4495	46	9675	53	9853	16	8413	50	2818	52	2514	15	20
50	4541	46	9728	53	9870	17	8363	50	2765	53	2499	15	10
44 0	0.304587	46	0.319782	54	1.049886	16	3.28313	50	3.12713	52	0.952484	15	**16** 0
10	4633	46	9835	53	9902	16	8263	50	2661	52	2470	14	50
20	4680	47	9889	54	9918	16	8214	49	2609	52	2455	15	40
30	4726	46	9942	53	9935	17	8164	50	2556	53	2440	15	30
40	4772	46	0.319996	54	9951	16	8114	50	2504	52	2425	15	20
50	4818	46	0.320049	53	9967	16	8064	50	2452	52	2411	14	10
45 0	0.304864	46	0.320103	54	1.049984	17	3.28015	49	3.12400	52	0.952396	15	**15** 0
10	4910	46	0156	53	1.050000	16	7965	50	2348	52	2381	15	50
20	4957	47	0209	53	0016	16	7915	50	2296	52	2366	15	40
30	5003	46	0263	54	0033	17	7866	49	2243	53	2351	15	30
40	5049	46	0316	53	0049	16	7816	50	2191	52	2337	14	20
50	5095	46	0370	54	0065	16	7767	49	2139	52	2322	15	10
46 0	0.305141	46	0.320423	53	1.050081	16	3.27717	50	3.12087	52	0.952307	15	**14** 0
10	5187	46	0477	54	0098	17	7667	50	2035	52	2292	15	50
20	5234	47	0530	53	0114	16	7618	49	1983	52	2277	15	40
30	5280	46	0584	54	0130	16	7568	50	1931	52	2263	14	30
40	5326	46	0637	53	0147	17	7519	49	1879	52	2248	15	20
50	5372	46	0691	54	0163	16	7469	50	1827	52	2233	15	10
47 0	0.305418	46	0.320744	53	1.050179	16	3.27420	49	3.11775	52	0.952218	15	**13** 0
10	5464	46	0798	54	0196	17	7370	50	1723	52	2203	15	50
20	5511	47	0851	53	0212	16	7321	49	1671	52	2189	14	40
30	5557	46	0904	53	0228	16	7271	50	1619	52	2174	15	30
40	5603	46	0958	54	0245	17	7222	49	1567	52	2159	15	20
50	5649	46	1011	53	0261	16	7173	49	1515	52	2144	15	10
48 0	0.305695	46	0.321065	54	1.050277	16	3.27123	50	3.11464	51	0.952129	15	**12** 0
10	5741	46	1118	53	0294	17	7074	49	1412	52	2115	14	50
20	5788	47	1172	54	0310	16	7024	50	1360	52	2100	15	40
30	5834	46	1225	53	0326	16	6975	49	1308	52	2085	15	30
40	5880	46	1279	54	0343	17	6926	49	1256	52	2070	15	20
50	5926	46	1332	53	0359	16	6876	50	1204	52	2055	15	10
49 0	0.305972	46	0.321386	54	1.050376	17	3.26827	49	3.11153	51	0.952040	15	**11** 0
10	6018	46	1439	53	0392	16	6778	49	1101	52	2026	14	50
20	6065	47	1493	54	0408	16	6728	50	1049	52	2011	15	40
30	6111	46	1546	53	0425	17	6679	49	0997	52	1996	15	30
40	6157	46	1600	54	0441	16	6630	49	0946	51	1981	15	20
50	6203	46	1653	53	0457	16	6581	49	0894	52	1966	15	10
50 0	0.306249	46	0.321707	54	1.050474	17	3.26531	50	3.10842	52	0.951951	15	**10** 0
	cos		cotg		cosec		sec		tang		sin		

14	
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

48	
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2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

72°

17°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.306249		0.321707		1.050474		3.26531		3.10842		0.951951		**10′** 0″
10	6295	46	1760	53	0490	16	6482	49	0790	52	1937	14	50
20	6341	46	1814	54	0507	17	6433	49	0739	51	1922	15	40
30	6388	47	1867	53	0523	16	6384	49	0687	52	1907	15	30
40	6434	46	1921	54	0539	16	6335	49	0635	52	1892	15	20
50	6480	46	1974	53	0556	17	6286	49	0584	51	1877	15	10
51 0	0.306526	46	0.322028	54	1.050572	16	3.26237	49	3.10532	52	0.951862	15	**9** 0
10	6572	46	2081	53	0589	17	6187	50	0481	51	1847	15	50
20	6618	46	2135	54	0605	16	6138	49	0429	52	1833	14	40
30	6665	47	2188	53	0621	16	6089	49	0378	51	1818	15	30
40	6711	46	2242	54	0638	17	6040	49	0326	52	1803	15	20
50	6757	46	2295	53	0654	16	5991	49	0274	52	1788	15	10
52 0	0.306803	46	0.322349	54	1.050671	17	3.25942	49	3.10223	51	0.951773	15	**8** 0
10	6849	46	2402	53	0687	16	5893	49	0171	52	1758	15	50
20	6895	46	2456	54	0703	16	5844	49	0120	51	1743	15	40
30	6941	46	2509	53	0720	17	5795	49	0068	52	1728	15	30
40	6988	47	2563	54	0736	16	5746	49	3.10017	51	1714	14	20
50	7034	46	2616	53	0753	17	5697	49	3.09966	51	1699	15	10
53 0	0.307080	46	0.322670	54	1.050769	16	3.25648	49	3.09914	52	0.951684	15	**7** 0
10	7126	46	2724	54	0786	17	5599	49	9863	51	1669	15	50
20	7172	46	2777	53	0802	16	5550	49	9811	52	1654	15	40
30	7218	46	2831	54	0819	17	5502	48	9760	51	1639	15	30
40	7264	46	2884	53	0835	16	5453	49	9709	51	1624	15	20
50	7310	46	2938	54	0851	16	5404	49	9657	52	1609	15	10
54 0	0.307357	47	0.322991	53	1.050868	17	3.25355	49	3.09606	51	0.951594	15	**6** 0
10	7403	46	3045	54	0884	16	5306	49	9555	51	1580	14	50
20	7449	46	3098	53	0901	17	5257	49	9503	52	1565	15	40
30	7495	46	3152	54	0917	16	5209	48	9452	51	1550	15	30
40	7541	46	3205	53	0934	17	5160	49	9401	51	1535	15	20
50	7587	46	3259	54	0950	16	5111	49	9350	51	1520	15	10
55 0	0.307633	46	0.323312	53	1.050967	17	3.25062	49	3.09298	52	0.951505	15	**5** 0
10	7680	47	3366	54	0983	16	5013	49	9247	51	1490	15	50
20	7726	46	3420	54	1000	17	4965	48	9196	51	1475	15	40
30	7772	46	3473	53	1016	16	4916	49	9145	51	1460	15	30
40	7818	46	3527	54	1033	17	4867	49	9094	51	1445	15	20
50	7864	46	3580	53	1049	16	4819	48	9042	52	1430	15	10
56 0	0.307910	46	0.323634	54	1.051066	17	3.24770	49	3.08991	51	0.951415	15	**4** 0
10	7956	46	3687	53	1082	16	4721	49	8940	51	1401	14	50
20	8002	46	3741	54	1099	17	4673	48	8889	51	1386	15	40
30	8049	47	3794	53	1115	16	4624	49	8838	51	1371	15	30
40	8095	46	3848	54	1132	17	4576	48	8787	51	1356	15	20
50	8141	46	3902	54	1148	16	4527	49	8736	51	1341	15	10
57 0	0.308187	46	0.323955	53	1.051165	17	3.24478	49	3.08685	51	0.951326	15	**3** 0
10	8233	46	4009	54	1181	16	4430	48	8634	51	1311	15	50
20	8279	46	4062	53	1198	17	4381	49	8583	51	1296	15	40
30	8325	46	4116	54	1214	16	4333	48	8532	51	1281	15	30
40	8371	46	4169	53	1231	17	4284	49	8481	51	1266	15	20
50	8418	47	4223	54	1247	16	4236	48	8430	51	1251	15	10
58 0	0.308464	46	0.324277	54	1.051264	17	3.24187	49	3.08379	51	0.951236	15	**2** 0
10	8510	46	4330	53	1280	16	4139	48	8328	51	1221	15	50
20	8556	46	4384	54	1297	17	4090	49	8277	51	1206	15	40
30	8602	46	4437	53	1313	16	4042	48	8226	51	1191	15	30
40	8648	46	4491	54	1330	17	3994	48	8175	51	1176	15	20
50	8694	46	4545	54	1346	16	3945	49	8124	51	1161	15	10
59 0	0.308740	46	0.324598	53	1.051363	17	3.23897	48	3.08073	51	0.951146	15	**1** 0
10	8786	46	4652	54	1379	16	3848	49	8022	51	1131	15	50
20	8833	47	4705	53	1396	17	3800	48	7972	50	1116	15	40
30	8879	46	4759	54	1413	17	3752	48	7921	51	1101	15	30
40	8925	46	4813	54	1429	16	3703	49	7870	51	1086	15	20
50	8971	46	4866	53	1446	17	3655	48	7819	51	1071	15	10
60 0	0.309017	46	0.324920	54	1.051462	16	3.23607	48	3.07768	51	0.951057	14	**0** 0
	cos		cotg		cosec		sec		tang		sin		

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9	13.5

17	
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7	11.9
8	13.6
9	15.3

47	
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2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49	
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2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

51	
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2	10.2
3	15.3
4	20.4
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7	35.7
8	40.8
9	45.9

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

72°

18°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.309017		0.324920		1.051462		3.23607		3.07768		0.951057		**60′** 0″
10	9063	46	4973	53	1479	17	3559	48	7718	50	1042	15	50
20	9109	46	5027	54	1495	16	3510	49	7667	51	1027	15	40
30	9155	46	5081	54	1512	17	3462	48	7616	51	1012	15	30
40	9201	46	5134	53	1529	17	3414	48	7565	51	0997	15	20
50	9248	47	5188	54	1545	16	3366	48	7515	50	0982	15	10
1 0	0.309294	46	0.325241	53	1.051562	17	3.23317	49	3.07464	51	0.950967	15	**59** 0
10	9340	46	5295	54	1578	16	3269	48	7413	51	0952	15	50
20	9386	46	5349	54	1595	17	3221	48	7363	50	0937	15	40
30	9432	46	5402	53	1611	16	3173	48	7312	51	0922	15	30
40	9478	46	5456	54	1628	17	3125	48	7261	51	0907	15	20
50	9524	46	5509	53	1645	17	3077	48	7211	50	0892	15	10
2 0	0.309570	46	0.325563	54	1.051661	16	3.23028	49	3.07160	51	0.950877	15	**58** 0
10	9616	46	5617	54	1678	17	2980	48	7110	50	0862	15	50
20	9662	46	5670	53	1694	16	2932	48	7059	51	0847	15	40
30	9709	47	5724	54	1711	17	2884	48	7008	51	0832	15	30
40	9755	46	5778	54	1728	17	2836	48	6958	50	0817	15	20
50	9801	46	5831	53	1744	16	2788	48	6907	51	0802	15	10
3 0	0.309847	46	0.325885	54	1.051761	17	3.22740	48	3.06857	50	0.950786	16	**57** 0
10	9893	46	5938	53	1777	16	2692	48	6806	51	0771	15	50
20	9939	46	5992	54	1794	17	2644	48	6756	50	0756	15	40
30	0.309985	46	6046	54	1811	17	2596	48	6706	50	0741	15	30
40	0.310031	46	6099	53	1827	16	2548	48	6655	51	0726	15	20
50	0077	46	6153	54	1844	17	2500	48	6605	50	0711	15	10
4 0	0.310123	46	0.326207	54	1.051861	17	3.22452	48	3.06554	51	0.950696	15	**56** 0
10	0169	46	6260	53	1877	16	2404	48	6504	50	0681	15	50
20	0216	47	6314	54	1894	17	2356	48	6453	51	0666	15	40
30	0262	46	6368	54	1911	17	2309	47	6403	50	0651	15	30
40	0308	46	6421	53	1927	16	2261	48	6353	50	0636	15	20
50	0354	46	6475	54	1944	17	2213	48	6302	51	0621	15	10
5 0	0.310400	46	0.326528	53	1.051960	16	3.22165	48	3.06252	50	0.950606	15	**55** 0
10	0446	46	6582	54	1977	17	2117	48	6202	50	0591	15	50
20	0492	46	6636	54	1994	17	2069	48	6151	51	0576	15	40
30	0538	46	6689	53	2010	16	2022	47	6101	50	0561	15	30
40	0584	46	6743	54	2027	17	1974	48	6051	50	0546	15	20
50	0630	46	6797	54	2044	17	1926	48	6001	50	0531	15	10
6 0	0.310676	46	0.326850	53	1.052060	16	3.21878	48	3.05950	51	0.950516	15	**54** 0
10	0723	47	6904	54	2077	17	1831	47	5900	50	0501	15	50
20	0769	46	6958	54	2094	17	1783	48	5850	50	0486	15	40
30	0815	46	7011	53	2110	16	1735	48	5800	50	0471	15	30
40	0861	46	7065	54	2127	17	1687	48	5750	50	0455	16	20
50	0907	46	7119	54	2144	17	1640	47	5699	51	0440	15	10
7 0	0.310953	46	0.327172	53	1.052161	17	3.21592	48	3.05649	50	0.950425	15	**53** 0
10	0999	46	7226	54	2177	16	1544	48	5599	50	0410	15	50
20	1045	46	7280	54	2194	17	1497	47	5549	50	0395	15	40
30	1091	46	7333	53	2211	17	1449	48	5499	50	0380	15	30
40	1137	46	7387	54	2227	16	1402	47	5449	50	0365	15	20
50	1183	46	7441	54	2244	17	1354	48	5399	50	0350	15	10
8 0	0.311229	46	0.327494	53	1.052261	17	3.21306	48	3.05349	50	0.950335	15	**52** 0
10	1275	46	7548	54	2277	16	1259	47	5299	50	0320	15	50
20	1322	47	7602	54	2294	17	1211	48	5249	50	0305	15	40
30	1368	46	7655	53	2311	17	1164	47	5199	50	0290	15	30
40	1414	46	7709	54	2328	17	1116	48	5149	50	0274	16	20
50	1460	46	7763	54	2344	16	1069	47	5099	50	0259	15	10
9 0	0.311506	46	0.327817	54	1.052361	17	3.21021	48	3.05049	50	0.950244	15	**51** 0
10	1552	46	7870	53	2378	17	0974	47	4999	50	0229	15	50
20	1598	46	7924	54	2394	16	0926	48	4949	50	0214	15	40
30	1644	46	7978	54	2411	17	0879	47	4899	50	0199	15	30
40	1690	46	8031	53	2428	17	0832	47	4849	50	0184	15	20
50	1736	46	8085	54	2445	17	0784	48	4799	50	0169	15	10
10 0	0.311782	46	0.328139	54	1.052461	16	3.20737	47	3.04749	50	0.950154	15	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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9	13.5

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7	11.9
8	13.6
9	15.3

47	
1	4.7
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3	14.1
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8	37.6
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9	44.1

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6	30.0
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9	45.0

53	
1	5.3
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3	15.9
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6	31.8
7	37.1
8	42.4
9	47.7

71°

18°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.311782		0.328139		1.052461		3.20737		3.04749		0.950154		**50′** 0″
10	1828	46	8192	53	2478	17	0689	48	4699	50	0138	16	50
20	1874	46	8246	54	2495	17	0642	47	4649	50	0123	15	40
30	1920	46	8300	54	2512	17	0595	47	4600	49	0108	15	30
40	1966	46	8354	54	2528	16	0547	48	4550	50	0093	15	20
50	2013	47	8407	53	2545	17	0500	47	4500	50	0078	15	10
11 0	0.312059	46	0.328461	54	1.052562	17	3.20453	47	3.04450	50	0.950063	15	**49** 0
10	2105	46	8515	54	2579	17	0405	48	4400	50	0048	15	50
20	2151	46	8568	53	2595	16	0358	47	4351	49	0033	15	40
30	2197	46	8622	54	2612	17	0311	47	4301	50	0017	16	30
40	2243	46	8676	54	2629	17	0264	47	4251	50	0.950002	15	20
50	2289	46	8730	54	2646	17	0216	48	4201	50	0.949987	15	10
12 0	0.312335	46	0.328783	53	1.052663	17	3.20169	47	3.04152	49	0.949972	15	**48** 0
10	2381	46	8837	54	2679	16	0122	47	4102	50	9957	15	50
20	2427	46	8891	54	2696	17	0075	47	4052	50	9942	15	40
30	2473	46	8944	53	2713	17	3.20028	47	4003	49	9927	15	30
40	2519	46	8998	54	2730	17	3.19980	48	3953	50	9911	16	20
50	2565	46	9052	54	2746	16	9933	47	3903	50	9896	15	10
13 0	0.312611	46	0.329106	54	1.052763	17	3.19886	47	3.03854	49	0.949881	15	**47** 0
10	2657	46	9159	53	2780	17	9839	47	3804	50	9866	15	50
20	2703	46	9213	54	2797	17	9792	47	3755	49	9851	15	40
30	2749	46	9267	54	2814	17	9745	47	3705	50	9836	15	30
40	2795	46	9321	54	2830	16	9698	47	3655	50	9821	15	20
50	2841	46	9374	53	2847	17	9651	47	3606	49	9805	16	10
14 0	0.312888	47	0.329428	54	1.052864	17	3.19604	47	3.03556	50	0.949790	15	**46** 0
10	2934	46	9482	54	2881	17	9557	47	3507	49	9775	15	50
20	2980	46	9536	54	2898	17	9510	47	3457	50	9760	15	40
30	3026	46	9589	53	2915	17	9463	47	3408	49	9745	15	30
40	3072	46	9643	54	2931	16	9416	47	3358	50	9729	16	20
50	3118	46	9697	54	2948	17	9369	47	3309	49	9714	15	10
15 0	0.313164	46	0.329751	54	1.052965	17	3.19322	47	3.03260	49	0.949699	15	**45** 0
10	3210	46	9804	53	2982	17	9275	47	3210	50	9684	15	50
20	3256	46	9858	54	2999	17	9228	47	3161	49	9669	15	40
30	3302	46	9912	54	3016	17	9181	47	3111	50	9654	15	30
40	3348	46	0.329966	54	3032	16	9134	47	3062	49	9638	16	20
50	3394	46	0.330019	53	3049	17	9087	47	3013	49	9623	15	10
16 0	0.313440	46	0.330073	54	1.053066	17	3.19040	47	3.02963	50	0.949608	15	**44** 0
10	3486	46	0127	54	3083	17	8993	47	2914	49	9593	15	50
20	3532	46	0181	54	3100	17	8947	46	2865	49	9578	15	40
30	3578	46	0234	53	3117	17	8900	47	2815	50	9562	16	30
40	3624	46	0288	54	3134	17	8853	47	2766	49	9547	15	20
50	3670	46	0342	54	3150	16	8806	47	2717	49	9532	15	10
17 0	0.313716	46	0.330396	54	1.053167	17	3.18759	47	3.02667	50	0.949517	15	**43** 0
10	3762	46	0449	53	3184	17	8713	46	2618	49	9502	15	50
20	3808	46	0503	54	3201	17	8666	47	2569	49	9486	16	40
30	3854	46	0557	54	3218	17	8619	47	2520	49	9471	15	30
40	3900	46	0611	54	3235	17	8572	47	2470	50	9456	15	20
50	3946	46	0665	54	3252	17	8526	46	2421	49	9441	15	10
18 0	0.313992	46	0.330718	53	1.053269	17	3.18479	47	3.02372	49	0.949425	16	**42** 0
10	4038	46	0772	54	3285	16	8432	47	2323	49	9410	15	50
20	4085	47	0826	54	3302	17	8386	46	2274	49	9395	15	40
30	4131	46	0880	54	3319	17	8339	47	2225	49	9380	15	30
40	4177	46	0934	54	3336	17	8292	47	2175	50	9365	15	20
50	4223	46	0987	53	3353	17	8246	46	2126	49	9349	16	10
19 0	0.314269	46	0.331041	54	1.053370	17	3.18199	47	3.02077	49	0.949334	15	**41** 0
10	4315	46	1095	54	3387	17	8153	46	2028	49	9319	15	50
20	4361	46	1149	54	3404	17	8106	47	1979	49	9304	15	40
30	4407	46	1203	54	3421	17	8059	47	1930	49	9288	16	30
40	4453	46	1256	53	3438	17	8013	46	1881	49	9273	15	20
50	4499	46	1310	54	3455	17	7966	47	1832	49	9258	15	10
20 0	0.314545	46	0.331364	54	1.053471	16	3.17920	46	3.01783	49	0.949243	15	**40** 0
	cos		cotg		cosec		sec		tang		sin		

16	
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8	12.8
9	14.4

46	
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2	9.2
3	13.8
4	18.4
5	23.0
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7	32.2
8	36.8
9	41.4

48	
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2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

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7	35.0
8	40.0
9	45.0

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8	40.8
9	45.9

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

71°

18°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.314545		0.331364		1.053471		3.17920		3.01783		0.949243		**40′** 0″
10	4591	46	1418	54	3488	17	7873	47	1734	49	9227	16	50
20	4637	46	1472	54	3505	17	7827	46	1685	49	9212	15	40
30	4683	46	1525	53	3522	17	7780	47	1636	49	9197	15	30
40	4729	46	1579	54	3539	17	7734	46	1587	49	9182	15	20
50	4775	46	1633	54	3556	17	7687	47	1538	49	9166	16	10
21 0	0.314821	46	0.331687	54	1.053573	17	3.17641	46	3.01489	49	0.949151	15	**39** 0
10	4867	46	1741	54	3590	17	7595	46	1440	49	9136	15	50
20	4913	46	1794	53	3607	17	7548	47	1391	49	9121	15	40
30	4959	46	1848	54	3624	17	7502	46	1343	48	9105	16	30
40	5005	46	1902	54	3641	17	7455	47	1294	49	9090	15	20
50	5051	46	1956	54	3658	17	7409	46	1245	49	9075	15	10
22 0	0.315097	46	0.332010	54	1.053675	17	3.17363	46	3.01196	49	0.949059	16	**38** 0
10	5143	46	2064	54	3692	17	7316	47	1147	49	9044	15	50
20	5189	46	2117	53	3709	17	7270	46	1098	49	9029	15	40
30	5235	46	2171	54	3726	17	7224	46	1050	48	9014	15	30
40	5281	46	2225	54	3743	17	7177	47	1001	49	8998	16	20
50	5327	46	2279	54	3760	17	7131	46	0952	49	8983	15	10
23 0	0.315373	46	0.332333	54	1.053777	17	3.17085	46	3.00903	49	0.948968	15	**37** 0
10	5419	46	2387	54	3794	17	7039	46	0855	48	8952	16	50
20	5465	46	2440	53	3811	17	6992	47	0806	49	8937	15	40
30	5511	46	2494	54	3827	16	6946	46	0757	49	8922	15	30
40	5557	46	2548	54	3844	17	6900	46	0708	49	8907	15	20
50	5603	46	2602	54	3861	17	6854	46	0660	48	8891	16	10
24 0	0.315649	46	0.332656	54	1.053878	17	3.16808	46	3.00611	49	0.948876	15	**36** 0
10	5695	46	2710	54	3895	17	6761	47	0562	49	8861	15	50
20	5741	46	2763	53	3912	17	6715	46	0514	48	8845	16	40
30	5787	46	2817	54	3929	17	6669	46	0465	49	8830	15	30
40	5833	46	2871	54	3946	17	6623	46	0417	48	8815	15	20
50	5879	46	2925	54	3963	17	6577	46	0368	49	8799	16	10
25 0	0.315925	46	0.332979	54	1.053981	18	3.16531	46	3.00319	49	0.948784	15	**35** 0
10	5971	46	3033	54	3998	17	6485	46	0271	48	8769	15	50
20	6017	46	3087	54	4015	17	6439	46	0222	49	8754	15	40
30	6063	46	3140	53	4032	17	6393	46	0174	48	8738	16	30
40	6109	46	3194	54	4049	17	6347	46	0125	49	8723	15	20
50	6155	46	3248	54	4066	17	6301	46	0077	48	8708	15	10
26 0	0.316201	46	0.333302	54	1.054083	17	3.16255	46	3.00028	49	0.948692	16	**34** 0
10	6247	46	3356	54	4100	17	6209	46	2.99980	48	8677	15	50
20	6293	46	3410	54	4117	17	6163	46	9931	49	8662	15	40
30	6339	46	3464	54	4134	17	6117	46	9883	48	8646	16	30
40	6385	46	3517	53	4151	17	6071	46	9834	49	8631	15	20
50	6431	46	3571	54	4168	17	6025	46	9786	48	8616	15	10
27 0	0.316477	46	0.333625	54	1.054185	17	3.15979	46	2.99738	48	0.948600	16	**33** 0
10	6523	46	3679	54	4202	17	5933	46	9689	49	8585	15	50
20	6569	46	3733	54	4219	17	5887	46	9641	48	8570	15	40
30	6615	46	3787	54	4236	17	5841	46	9592	49	8554	16	30
40	6661	46	3841	54	4253	17	5795	46	9544	48	8539	15	20
50	6707	46	3895	54	4270	17	5749	46	9496	48	8523	16	10
28 0	0.316753	46	0.333949	54	1.054287	17	3.15704	45	2.99447	49	0.948508	15	**32** 0
10	6799	46	4002	53	4304	17	5658	46	9399	48	8493	15	50
20	6845	46	4056	54	4321	17	5612	46	9351	48	8477	16	40
30	6891	46	4110	54	4338	17	5566	46	9302	49	8462	15	30
40	6937	46	4164	54	4356	18	5520	46	9254	48	8447	15	20
50	6983	46	4218	54	4373	17	5475	45	9206	48	8431	16	10
29 0	0.317029	46	0.334272	54	1.054390	17	3.15429	46	2.99158	48	0.948416	15	**31** 0
10	7075	46	4326	54	4407	17	5383	46	9109	49	8401	15	50
20	7121	46	4380	54	4424	17	5337	46	9061	48	8385	16	40
30	7167	46	4434	54	4441	17	5292	45	9013	48	8370	15	30
40	7213	46	4488	54	4458	17	5246	46	8965	48	8354	16	20
50	7259	46	4541	53	4475	17	5200	46	8917	48	8339	15	10
30 0	0.317305	46	0.334595	54	1.054492	17	3.15155	45	2.98868	49	0.948324	15	**30** 0
	cos		cotg		cosec		sec		tang		sin		

15	
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7	10.5
8	12.0
9	13.5

17	
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4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

46	
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3	13.8
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5	23.0
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8	36.8
9	41.4

48	
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2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

53	
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3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

71°

18°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.317305		0.334595		1.054492		3.15155		2.98868		0.948324		**30′** 0″
10	7351	46	4649	54	4509	17	5109	46	8820	48	8308	16	50
20	7397	46	4703	54	4527	18	5063	46	8772	48	8293	15	40
30	7443	46	4757	54	4544	17	5018	45	8724	48	8277	16	30
40	7489	46	4811	54	4561	17	4972	46	8676	48	8262	15	20
50	7535	46	4865	54	4578	17	4926	46	8628	48	8247	15	10
31 0	0.317580	45	0.334919	54	1.054595	17	3.14881	45	2.98580	48	0.948231	16	**29** 0
10	7626	46	4973	54	4612	17	4835	46	8532	48	8216	15	50
20	7672	46	5027	54	4629	17	4790	45	8484	48	8201	15	40
30	7718	46	5081	54	4646	17	4744	46	8436	48	8185	16	30
40	7764	46	5134	53	4664	18	4699	45	8388	48	8170	15	20
50	7810	46	5188	54	4681	17	4653	46	8340	48	8154	16	10
32 0	0.317856	46	0.335242	54	1.054698	17	3.14608	45	2.98292	48	0.948139	15	**28** 0
10	7902	46	5296	54	4715	17	4562	46	8244	48	8123	16	50
20	7948	46	5350	54	4732	17	4517	45	8196	48	8108	15	40
30	7994	46	5404	54	4749	17	4471	46	8148	48	8093	15	30
40	8040	46	5458	54	4766	17	4426	45	8100	48	8077	16	20
50	8086	46	5512	54	4784	18	4380	46	8052	48	8062	15	10
33 0	0.318132	46	0.335566	54	1.054801	17	3.14335	45	2.98004	48	0.948046	16	**27** 0
10	8178	46	5620	54	4818	17	4289	46	7956	48	8031	15	50
20	8224	46	5674	54	4835	17	4244	45	7908	48	8016	15	40
30	8270	46	5728	54	4852	17	4199	45	7860	48	8000	16	30
40	8316	46	5782	54	4869	17	4153	46	7812	48	7985	15	20
50	8362	46	5836	54	4887	18	4108	45	7765	47	7969	16	10
34 0	0.318408	46	0.335890	54	1.054904	17	3.14063	45	2.97717	48	0.947954	15	**26** 0
10	8454	46	5944	54	4921	17	4017	46	7669	48	7938	16	50
20	8500	46	5998	54	4938	17	3972	45	7621	48	7923	15	40
30	8546	46	6052	54	4955	17	3927	45	7573	48	7907	16	30
40	8592	46	6105	53	4972	17	3881	46	7526	47	7892	15	20
50	8638	46	6159	54	4990	18	3836	45	7478	48	7877	15	10
35 0	0.318684	46	0.336213	54	1.055007	17	3.13791	45	2.97430	48	0.947861	16	**25** 0
10	8730	46	6267	54	5024	17	3746	45	7382	48	7846	15	50
20	8776	46	6321	54	5041	17	3700	46	7335	47	7830	16	40
30	8821	45	6375	54	5058	17	3655	45	7287	48	7815	15	30
40	8867	46	6429	54	5076	18	3610	45	7239	48	7799	16	20
50	8913	46	6483	54	5093	17	3565	45	7192	47	7784	15	10
36 0	0.318959	46	0.336537	54	1.055110	17	3.13520	45	2.97144	48	0.947768	16	**24** 0
10	9005	46	6591	54	5127	17	3474	46	7096	48	7753	15	50
20	9051	46	6645	54	5145	18	3429	45	7049	47	7737	16	40
30	9097	46	6699	54	5162	17	3384	45	7001	48	7722	15	30
40	9143	46	6753	54	5179	17	3339	45	6953	48	7707	15	20
50	9189	46	6807	54	5196	17	3294	45	6906	47	7691	16	10
37 0	0.319235	46	0.336861	54	1.055213	17	3.13249	45	2.96858	48	0.947676	15	**23** 0
10	9281	46	6915	54	5231	18	3204	45	6811	47	7660	16	50
20	9327	46	6969	54	5248	17	3159	45	6763	48	7645	15	40
30	9373	46	7023	54	5265	17	3114	45	6716	47	7629	16	30
40	9419	46	7077	54	5282	17	3069	45	6668	48	7614	15	20
50	9465	46	7131	54	5300	18	3024	45	6621	47	7598	16	10
38 0	0.319511	46	0.337185	54	1.055317	17	3.12979	45	2.96573	48	0.947583	15	**22** 0
10	9557	46	7239	54	5334	17	2934	45	6526	47	7567	16	50
20	9603	46	7293	54	5351	17	2889	45	6478	48	7552	15	40
30	9648	45	7347	54	5369	18	2844	45	6431	47	7536	16	30
40	9694	46	7401	54	5386	17	2799	45	6383	48	7521	15	20
50	9740	46	7455	54	5403	17	2754	45	6336	47	7505	16	10
39 0	0.319786	46	0.337509	54	1.055420	17	3.12709	45	2.96288	48	0.947490	15	**21** 0
10	9832	46	7563	54	5438	18	2664	45	6241	47	7474	16	50
20	9878	46	7617	54	5455	17	2619	45	6194	47	7459	15	40
30	9924	46	7671	54	5472	17	2574	45	6146	48	7443	16	30
40	0.319970	46	7725	54	5490	18	2529	45	6099	47	7428	15	20
50	0.320016	46	7779	54	5507	17	2484	45	6052	47	7412	16	10
40 0	0.320062	46	0.337833	54	1.055524	17	3.12440	44	2.96004	48	0.947397	15	**20** 0
	cos		cotg		cosec		sec		tang		sin		

16	
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8	12.8
9	14.4

18	
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2	3.6
3	5.4
4	7.2
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6	10.8
7	12.6
8	14.4
9	16.2

45	
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2	9.0
3	13.5
4	18.0
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6	27.0
7	31.5
8	36.0
9	40.5

47	
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2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

49	
1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

54	
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2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

71°

18°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.320062		0.337833		1.055524		3.12440		2.96004		0.947397		**20′** 0″
10	0108	46	7887	54	5541	17	2395	45	5957	47	7381	16	50
20	0154	46	7941	54	5559	18	2350	45	5910	47	7366	15	40
30	0200	46	7995	54	5576	17	2305	45	5862	48	7350	16	30
40	0246	46	8049	54	5593	17	2260	45	5815	47	7335	15	20
50	0292	46	8103	54	5611	18	2216	44	5768	47	7319	16	10
41 0	0.320337	45	0.338157	54	1.055628	17	3.12171	45	2.95721	47	0.947304	15	**19** 0
10	0383	46	8211	54	5645	17	2126	45	5673	48	7288	16	50
20	0429	46	8265	54	5663	18	2081	45	5626	47	7272	16	40
30	0475	46	8319	54	5680	17	2037	44	5579	47	7257	15	30
40	0521	46	8373	54	5697	17	1992	45	5532	47	7241	16	20
50	0567	46	8427	54	5714	17	1947	45	5484	48	7226	15	10
42 0	0.320613	46	0.338481	54	1.055732	18	3.11903	44	2.95437	47	0.947210	16	**18** 0
10	0659	46	8535	54	5749	17	1858	45	5390	47	7195	15	50
20	0705	46	8589	54	5766	17	1813	45	5343	47	7179	16	40
30	0751	46	8643	54	5784	18	1769	44	5296	47	7164	15	30
40	0797	46	8697	54	5801	17	1724	45	5249	47	7148	16	20
50	0843	46	8752	55	5818	17	1679	45	5202	47	7133	15	10
43 0	0.320889	46	0.338806	54	1.055836	18	3.11635	44	2.95155	47	0.947117	16	**17** 0
10	0934	45	8860	54	5853	17	1590	45	5107	48	7101	16	50
20	0980	46	8914	54	5870	17	1546	44	5060	47	7086	15	40
30	1026	46	8968	54	5888	18	1501	45	5013	47	7070	16	30
40	1072	46	9022	54	5905	17	1456	45	4966	47	7055	15	20
50	1118	46	9076	54	5923	18	1412	44	4919	47	7039	16	10
44 0	0.321164	46	0.339130	54	1.055940	17	3.11367	45	2.94872	47	0.947024	15	**16** 0
10	1210	46	9184	54	5957	17	1323	44	4825	47	7008	16	50
20	1256	46	9238	54	5975	18	1278	45	4778	47	6992	16	40
30	1302	46	9292	54	5992	17	1234	44	4731	47	6977	15	30
40	1348	46	9346	54	6009	17	1189	45	4684	47	6961	16	20
50	1394	46	9400	54	6027	18	1145	44	4637	47	6946	15	10
45 0	0.321439	45	0.339454	54	1.056044	17	3.11101	44	2.94591	46	0.946930	16	**15** 0
10	1485	46	9508	54	6062	18	1056	45	4544	47	6915	15	50
20	1531	46	9562	54	6079	17	1012	44	4497	47	6899	16	40
30	1577	46	9616	54	6096	17	0967	45	4450	47	6883	16	30
40	1623	46	9671	55	6114	18	0923	44	4403	47	6868	15	20
50	1669	46	9725	54	6131	17	0879	44	4356	47	6852	16	10
46 0	0.321715	46	0.339779	54	1.056148	17	3.10834	45	2.94309	47	0.946837	15	**14** 0
10	1761	46	9833	54	6166	18	0790	44	4262	47	6821	16	50
20	1807	46	9887	54	6183	17	0746	44	4216	46	6805	16	40
30	1853	46	9941	54	6201	18	0701	45	4169	47	6790	15	30
40	1899	46	0.339995	54	6218	17	0657	44	4122	47	6774	16	20
50	1944	45	0.340049	54	6235	17	0613	44	4075	47	6759	15	10
47 0	0.321990	46	0.340103	54	1.056253	18	3.10568	45	2.94028	47	0.946743	16	**13** 0
10	2036	46	0157	54	6270	17	0524	44	3982	46	6727	16	50
20	2082	46	0211	54	6288	18	0480	44	3935	47	6712	15	40
30	2128	46	0265	54	6305	17	0436	44	3888	47	6696	16	30
40	2174	46	0320	55	6323	18	0391	45	3841	47	6681	15	20
50	2220	46	0374	54	6340	17	0347	44	3795	46	6665	16	10
48 0	0.322266	46	0.340428	54	1.056357	17	3.10303	44	2.93748	47	0.946649	16	**12** 0
10	2312	46	0482	54	6375	18	0259	44	3701	47	6634	15	50
20	2357	45	0536	54	6392	17	0215	44	3655	46	6618	16	40
30	2403	46	0590	54	6410	18	0170	45	3608	47	6602	16	30
40	2449	46	0644	54	6427	17	0126	44	3561	47	6587	15	20
50	2495	46	0698	54	6445	18	0082	44	3515	46	6571	16	10
49 0	0.322541	46	0.340752	54	1.056462	17	3.10038	44	2.93468	47	0.946555	16	**11** 0
10	2587	46	0807	55	6480	18	3.09994	44	3422	46	6540	15	50
20	2633	46	0861	54	6497	17	9950	44	3375	47	6524	16	40
30	2679	46	0915	54	6514	17	9906	44	3328	47	6509	15	30
40	2725	46	0969	54	6532	18	9862	44	3282	46	6493	16	20
50	2770	45	1023	54	6549	17	9818	44	3235	47	6477	16	10
50 0	0.322816	46	0.341077	54	1.056567	18	3.09774	44	2.93189	46	0.946462	15	**10** 0
	cos		cotg		cosec		sec		tang		sin		

15	
1	1.5
2	3.0
3	4.5
4	6.0
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6	9.0
7	10.5
8	12.0
9	13.5

17	
1	1.7
2	3.4
3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

47	
1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

71°

18°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.322816		0.341077		1.056567		3.09774		2.93189		0.946462		**10′** 0″
10	2862	46	1131	54	6584	17	9730	44	3142	47	6446	16	50
20	2908	46	1185	54	6602	18	9686	44	3096	46	6430	16	40
30	2954	46	1239	54	6619	17	9642	44	3049	47	6415	15	30
40	3000	46	1294	55	6637	18	9598	44	3003	46	6399	16	20
50	3046	46	1348	54	6654	17	9554	44	2956	47	6383	16	10
51 0	0.323092	46	0.341402	54	1.056672	18	3.09510	44	2.92910	46	0.946368	15	**9** 0
10	3138	46	1456	54	6689	17	9466	44	2864	46	6352	16	50
20	3183	45	1510	54	6707	18	9422	44	2817	47	6336	16	40
30	3229	46	1564	54	6724	17	9378	44	2771	46	6321	15	30
40	3275	46	1618	54	6742	18	9334	44	2724	47	6305	16	20
50	3321	46	1673	55	6759	17	9290	44	2678	46	6289	16	10
52 0	0.323367	46	0.341727	54	1.056777	18	3.09246	44	2.92632	46	0.946274	15	**8** 0
10	3413	46	1781	54	6794	17	9202	44	2585	47	6258	16	50
20	3459	46	1835	54	6812	18	9158	44	2539	46	6242	16	40
30	3505	46	1889	54	6829	17	9115	43	2492	47	6227	15	30
40	3550	45	1943	54	6847	18	9071	44	2446	46	6211	16	20
50	3596	46	1997	54	6864	17	9027	44	2400	46	6195	16	10
53 0	0.323642	46	0.342052	55	1.056882	18	3.08983	44	2.92354	46	0.946180	15	**7** 0
10	3688	46	2106	54	6899	17	8939	44	2307	47	6164	16	50
20	3734	46	2160	54	6917	18	8896	43	2261	46	6148	16	40
30	3780	46	2214	54	6934	17	8852	44	2215	46	6132	16	30
40	3826	46	2268	54	6952	18	8808	44	2169	46	6117	15	20
50	3872	46	2322	54	6970	18	8764	44	2122	47	6101	16	10
54 0	0.323917	45	0.342377	55	1.056987	17	3.08721	43	2.92076	46	0.946085	16	**6** 0
10	3963	46	2431	54	7005	18	8677	44	2030	46	6070	15	50
20	4009	46	2485	54	7022	17	8633	44	1984	46	6054	16	40
30	4055	46	2539	54	7040	18	8590	43	1938	46	6038	16	30
40	4101	46	2593	54	7057	17	8546	44	1891	47	6023	15	20
50	4147	46	2647	54	7075	18	8502	44	1845	46	6007	16	10
55 0	0.324193	46	0.342702	55	1.057092	17	3.08459	43	2.91799	46	0.945991	16	**5** 0
10	4238	45	2756	54	7110	18	8415	44	1753	46	5975	16	50
20	4284	46	2810	54	7128	18	8371	44	1707	46	5960	15	40
30	4330	46	2864	54	7145	17	8328	43	1661	46	5944	16	30
40	4376	46	2918	54	7163	18	8284	44	1615	46	5928	16	20
50	4422	46	2972	54	7180	17	8241	43	1569	46	5912	16	10
56 0	0.324468	46	0.343027	55	1.057198	18	3.08197	44	2.91523	46	0.945897	15	**4** 0
10	4514	46	3081	54	7215	17	8153	44	1477	46	5881	16	50
20	4559	45	3135	54	7233	18	8110	43	1430	47	5865	16	40
30	4605	46	3189	54	7251	18	8066	44	1384	46	5850	15	30
40	4651	46	3243	54	7268	17	8023	43	1338	46	5834	16	20
50	4697	46	3298	55	7286	18	7979	44	1292	46	5818	16	10
57 0	0.324743	46	0.343352	54	1.057303	17	3.07936	43	2.91246	46	0.945802	16	**3** 0
10	4789	46	3406	54	7321	18	7892	44	1201	45	5787	15	50
20	4835	46	3460	54	7339	18	7849	43	1155	46	5771	16	40
30	4880	45	3514	54	7356	17	7806	43	1109	46	5755	16	30
40	4926	46	3569	55	7374	18	7762	44	1063	46	5739	16	20
50	4972	46	3623	54	7391	17	7719	43	1017	46	5724	15	10
58 0	0.325018	46	0.343677	54	1.057409	18	3.07675	44	2.90971	46	0.945708	16	**2** 0
10	5064	46	3731	54	7427	18	7632	43	0925	46	5692	16	50
20	5110	46	3785	54	7444	17	7588	44	0879	46	5676	16	40
30	5156	46	3840	55	7462	18	7545	43	0833	46	5661	15	30
40	5201	45	3894	54	7480	18	7502	43	0787	46	5645	16	20
50	5247	46	3948	54	7497	17	7458	44	0742	45	5629	16	10
59 0	0.325293	46	0.344002	54	1.057515	18	3.07415	43	2.90696	46	0.945613	16	**1** 0
10	5339	46	4056	54	7532	17	7372	43	0650	46	5597	16	50
20	5385	46	4111	55	7550	18	7328	44	0604	46	5582	15	40
30	5431	46	4165	54	7568	18	7285	43	0558	46	5566	16	30
40	5476	45	4219	54	7585	17	7242	43	0513	45	5550	16	20
50	5522	46	4273	54	7603	18	7199	43	0467	46	5534	16	10
60 0	0.325568	46	0.344328	55	1.057621	18	3.07155	44	2.90421	46	0.945519	15	**0** 0
	cos		cotg		cosec		sec		tang		sin		

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9	43.2

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9	49.5

71°

19°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.325568		0.344328		1.057621		3.07155		2.90421		0.945519		**60′** 0″
10	5614	46	4382	54	7638	17	7112	43	0375	46	5503	16	50
20	5660	46	4436	54	7656	18	7069	43	0330	45	5487	16	40
30	5706	46	4490	54	7674	18	7026	43	0284	46	5471	16	30
40	5752	46	4545	55	7691	17	6982	44	0238	46	5455	16	20
50	5797	45	4599	54	7709	18	6939	43	0193	45	5440	15	10
1 0	0.325843	46	0.344653	54	1.057727	18	3.06896	43	2.90147	46	0.945424	16	**59** 0
10	5889	46	4707	54	7744	17	6853	43	0101	46	5408	16	50
20	5935	46	4762	55	7762	18	6810	43	0056	45	5392	16	40
30	5981	46	4816	54	7780	18	6767	43	2.90010	46	5376	16	30
40	6027	46	4870	54	7797	17	6724	43	2.89964	46	5361	15	20
50	6072	45	4924	54	7815	18	6680	44	9919	45	5345	16	10
2 0	0.326118	46	0.344978	54	1.057833	18	3.06637	43	2.89873	46	0.945329	16	**58** 0
10	6164	46	5033	55	7850	17	6594	43	9828	45	5313	16	50
20	6210	46	5087	54	7868	18	6551	43	9782	46	5297	16	40
30	6256	46	5141	54	7886	18	6508	43	9736	46	5282	15	30
40	6301	45	5196	55	7904	18	6465	43	9691	45	5266	16	20
50	6347	46	5250	54	7921	17	6422	43	9645	46	5250	16	10
3 0	0.326393	46	0.345304	54	1.057939	18	3.06379	43	2.89600	45	0.945234	16	**57** 0
10	6439	46	5358	54	7957	18	6336	43	9554	46	5218	16	50
20	6485	46	5413	55	7974	17	6293	43	9509	45	5202	16	40
30	6531	46	5467	54	7992	18	6250	43	9463	46	5187	15	30
40	6576	45	5521	54	8010	18	6207	43	9418	45	5171	16	20
50	6622	46	5575	54	8028	18	6164	43	9372	46	5155	16	10
4 0	0.326668	46	0.345630	55	1.058045	17	3.06121	43	2.89327	45	0.945139	16	**56** 0
10	6714	46	5684	54	8063	18	6078	43	9282	45	5123	16	50
20	6760	46	5738	54	8081	18	6035	43	9236	46	5107	16	40
30	6806	46	5792	54	8098	17	5992	43	9191	45	5092	15	30
40	6851	45	5847	55	8116	18	5949	43	9145	46	5076	16	20
50	6897	46	5901	54	8134	18	5907	42	9100	45	5060	16	10
5 0	0.326943	46	0.345955	54	1.058152	18	3.05864	43	2.89055	45	0.945044	16	**55** 0
10	6989	46	6010	55	8169	17	5821	43	9009	46	5028	16	50
20	7035	46	6064	54	8187	18	5778	43	8964	45	5012	16	40
30	7080	45	6118	54	8205	18	5735	43	8919	45	4996	16	30
40	7126	46	6172	54	8223	18	5692	43	8873	46	4981	15	20
50	7172	46	6227	55	8241	18	5650	42	8828	45	4965	16	10
6 0	0.327218	46	0.346281	54	1.058258	17	3.05607	43	2.88783	45	0.944949	16	**54** 0
10	7264	46	6335	54	8276	18	5564	43	8737	46	4933	16	50
20	7310	46	6390	55	8294	18	5521	43	8692	45	4917	16	40
30	7355	45	6444	54	8312	18	5478	43	8647	45	4901	16	30
40	7401	46	6498	54	8329	17	5436	42	8602	45	4885	16	20
50	7447	46	6553	55	8347	18	5393	43	8557	45	4870	15	10
7 0	0.327493	46	0.346607	54	1.058365	18	3.05350	43	2.88511	46	0.944854	16	**53** 0
10	7539	46	6661	54	8383	18	5308	42	8466	45	4838	16	50
20	7584	45	6715	54	8400	17	5265	43	8421	45	4822	16	40
30	7630	46	6770	55	8418	18	5222	43	8376	45	4806	16	30
40	7676	46	6824	54	8436	18	5180	42	8331	45	4790	16	20
50	7722	46	6878	54	8454	18	5137	43	8285	46	4774	16	10
8 0	0.327768	46	0.346933	55	1.058472	18	3.05094	43	2.88240	45	0.944758	16	**52** 0
10	7813	45	6987	54	8489	17	5052	42	8195	45	4742	16	50
20	7859	46	7041	54	8507	18	5009	43	8150	45	4727	15	40
30	7905	46	7096	55	8525	18	4966	43	8105	45	4711	16	30
40	7951	46	7150	54	8543	18	4924	42	8060	45	4695	16	20
50	7997	46	7204	54	8561	18	4881	43	8015	45	4679	16	10
9 0	0.328042	45	0.347259	55	1.058579	18	3.04839	42	2.87970	45	0.944663	16	**51** 0
10	8088	46	7313	54	8596	17	4796	43	7925	45	4647	16	50
20	8134	46	7367	54	8614	18	4754	42	7880	45	4631	16	40
30	8180	46	7422	55	8632	18	4711	43	7835	45	4615	16	30
40	8226	46	7476	54	8650	18	4669	42	7790	45	4599	16	20
50	8271	45	7530	54	8668	18	4626	43	7745	45	4583	16	10
10 0	0.328317	46	0.347585	55	1.058686	18	3.04584	42	2.87700	45	0.944568	15	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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17

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9	15.3

19

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6	11.4
7	13.3
8	15.2
9	17.1

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9	37.8

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8	36.0
9	40.5

54

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3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

70°

19°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.328317		0.347585		1.058686		3.04584		2.87700		0.944568		**50′** 0″
10	8363	46	7639	54	8703	17	4541	43	7655	45	4552	16	50
20	8409	46	7693	54	8721	18	4499	42	7610	45	4536	16	40
30	8455	46	7748	55	8739	18	4456	43	7565	45	4520	16	30
40	8500	45	7802	54	8757	18	4414	42	7520	45	4504	16	20
50	8546	46	7856	54	8775	18	4371	43	7475	45	4488	16	10
11 0	0.328592	46	0.347911	55	1.058793	18	3.04329	42	2.87430	45	0.944472	16	**49** 0
10	8638	46	7965	54	8811	18	4286	43	7385	45	4456	16	50
20	8684	46	8019	54	8828	17	4244	42	7340	45	4440	16	40
30	8729	45	8074	55	8846	18	4202	42	7295	45	4424	16	30
40	8775	46	8128	54	8864	18	4159	43	7251	44	4408	16	20
50	8821	46	8182	54	8882	18	4117	42	7206	45	4392	16	10
12 0	0.328867	46	0.348237	55	1.058900	18	3.04075	42	2.87161	45	0.944376	16	**48** 0
10	8912	45	8291	54	8918	18	4032	43	7116	45	4360	16	50
20	8958	46	8346	55	8936	18	3990	42	7071	45	4344	16	40
30	9004	46	8400	54	8953	17	3948	42	7026	45	4329	15	30
40	9050	46	8454	54	8971	18	3905	43	6982	44	4313	16	20
50	9096	46	8509	55	8989	18	3863	42	6937	45	4297	16	10
13 0	0.329141	45	0.348563	54	1.059007	18	3.03821	42	2.86892	45	0.944281	16	**47** 0
10	9187	46	8617	54	9025	18	3779	42	6847	45	4265	16	50
20	9233	46	8672	55	9043	18	3736	43	6803	44	4249	16	40
30	9279	46	8726	54	9061	18	3694	42	6758	45	4233	16	30
40	9324	45	8781	55	9079	18	3652	42	6713	45	4217	16	20
50	9370	46	8835	54	9097	18	3610	42	6669	44	4201	16	10
14 0	0.329416	46	0.348889	54	1.059115	18	3.03568	42	2.86624	45	0.944185	16	**46** 0
10	9462	46	8944	55	9133	18	3525	43	6579	45	4169	16	50
20	9508	46	8998	54	9150	17	3483	42	6535	44	4153	16	40
30	9553	45	9052	54	9168	18	3441	42	6490	45	4137	16	30
40	9599	46	9107	55	9186	18	3399	42	6445	45	4121	16	20
50	9645	46	9161	54	9204	18	3357	42	6401	44	4105	16	10
15 0	0.329691	46	0.349216	55	1.059222	18	3.03315	42	2.86356	45	0.944089	16	**45** 0
10	9736	45	9270	54	9240	18	3273	42	6311	45	4073	16	50
20	9782	46	9324	54	9258	18	3230	43	6267	44	4057	16	40
30	9828	46	9379	55	9276	18	3188	42	6222	45	4041	16	30
40	9874	46	9433	54	9294	18	3146	42	6178	44	4025	16	20
50	9919	45	9488	55	9312	18	3104	42	6133	45	4009	16	10
16 0	0.329965	46	0.349542	54	1.059330	18	3.03062	42	2.86089	44	0.943993	16	**44** 0
10	0.330011	46	9596	54	9348	18	3020	42	6044	45	3977	16	50
20	0057	46	9651	55	9366	18	2978	42	6000	44	3961	16	40
30	0103	46	9705	54	9384	18	2936	42	5955	45	3945	16	30
40	0148	45	9760	55	9402	18	2894	42	5911	44	3929	16	20
50	0194	46	9814	54	9420	18	2852	42	5866	45	3913	16	10
17 0	0.330240	46	0.349868	54	1.059438	18	3.02810	42	2.85822	44	0.943897	16	**43** 0
10	0286	46	9923	55	9456	18	2768	42	5777	45	3881	16	50
20	0331	45	0.349977	54	9474	18	2726	42	5733	44	3865	16	40
30	0377	46	0.350032	55	9491	17	2684	42	5688	45	3849	16	30
40	0423	46	0086	54	9509	18	2642	42	5644	44	3833	16	20
50	0469	46	0141	55	9527	18	2601	41	5600	44	3817	16	10
18 0	0.330514	45	0.350195	54	1.059545	18	3.02559	42	2.85555	45	0.943801	16	**42** 0
10	0560	46	0249	54	9563	18	2517	42	5511	44	3785	16	50
20	0606	46	0304	55	9581	18	2475	42	5466	45	3769	16	40
30	0652	46	0358	54	9599	18	2433	42	5422	44	3753	16	30
40	0697	45	0413	55	9617	18	2391	42	5378	44	3737	16	20
50	0743	46	0467	54	9635	18	2349	42	5333	45	3721	16	10
19 0	0.330789	46	0.350522	55	1.059653	18	3.02308	41	2.85289	44	0.943705	16	**41** 0
10	0835	46	0576	54	9671	18	2266	42	5245	44	3689	16	50
20	0880	45	0630	54	9689	18	2224	42	5201	44	3673	16	40
30	0926	46	0685	55	9707	18	2182	42	5156	45	3657	16	30
40	0972	46	0739	54	9725	18	2140	42	5112	44	3641	16	20
50	1018	46	0794	55	9744	19	2099	41	5068	44	3625	16	10
20 0	0.331063	45	0.350848	54	1.059762	18	3.02057	42	2.85023	45	0.943609	16	**40** 0
	cos		cotg		cosec		sec		tang		sin		

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8	14.4
9	16.2

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8	44.0
9	49.5

70°

19°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.331063		0.350848		1.059762		3.02057		2.85023		0.943609		**40′** 0″
10	1109	46	0903	55	9780	18	2015	42	4979	44	3592	17	50
20	1155	46	0957	54	9798	18	1973	42	4935	44	3576	16	40
30	1201	46	1012	55	9816	18	1932	41	4891	44	3560	16	30
40	1246	45	1066	54	9834	18	1890	42	4847	44	3544	16	20
50	1292	46	1121	55	9852	18	1848	42	4802	45	3528	16	10
21 0	0.331338	46	0.351175	54	1.059870	18	3.01807	41	2.84758	44	0.943512	16	**39** 0
10	1384	46	1229	54	9888	18	1765	42	4714	44	3496	16	50
20	1429	45	1284	55	9906	18	1723	42	4670	44	3480	16	40
30	1475	46	1338	54	9924	18	1682	41	4626	44	3464	16	30
40	1521	46	1393	55	9942	18	1640	42	4582	44	3448	16	20
50	1567	46	1447	54	9960	18	1599	41	4538	44	3432	16	10
22 0	0.331612	45	0.351502	55	1.059978	18	3.01557	42	2.84494	44	0.943416	16	**38** 0
10	1658	46	1556	54	1.059996	18	1515	42	4449	45	3400	16	50
20	1704	46	1611	55	1.060014	18	1474	41	4405	44	3384	16	40
30	1750	46	1665	54	0032	18	1432	42	4361	44	3368	16	30
40	1795	45	1720	55	0050	18	1391	41	4317	44	3351	17	20
50	1841	46	1774	54	0068	18	1349	42	4273	44	3335	16	10
23 0	0.331887	46	0.351829	55	1.060087	19	3.01308	41	2.84229	44	0.943319	16	**37** 0
10	1932	45	1883	54	0105	18	1266	42	4185	44	3303	16	50
20	1978	46	1938	55	0123	18	1225	41	4141	44	3287	16	40
30	2024	46	1992	54	0141	18	1183	42	4097	44	3271	16	30
40	2070	46	2047	55	0159	18	1142	41	4053	44	3255	16	20
50	2115	45	2101	54	0177	18	1100	42	4009	44	3239	16	10
24 0	0.332161	46	0.352156	55	1.060195	18	3.01059	41	2.83965	44	0.943223	16	**36** 0
10	2207	46	2210	54	0213	18	1017	42	3921	44	3207	16	50
20	2253	46	2265	55	0231	18	0976	41	3878	43	3190	17	40
30	2298	45	2319	54	0249	18	0934	42	3834	44	3174	16	30
40	2344	46	2374	55	0267	18	0893	41	3790	44	3158	16	20
50	2390	46	2428	54	0286	19	0852	41	3746	44	3142	16	10
25 0	0.332435	45	0.352483	55	1.060304	18	3.00810	42	2.83702	44	0.943126	16	**35** 0
10	2481	46	2537	54	0322	18	0769	41	3658	44	3110	16	50
20	2527	46	2592	55	0340	18	0728	41	3614	44	3094	16	40
30	2573	46	2646	54	0358	18	0686	42	3570	44	3078	16	30
40	2618	45	2701	55	0376	18	0645	41	3527	43	3062	16	20
50	2664	46	2755	54	0394	18	0604	41	3483	44	3045	17	10
26 0	0.332710	46	0.352810	55	1.060412	18	3.00562	42	2.83439	44	0.943029	16	**34** 0
10	2756	46	2864	54	0431	19	0521	41	3395	44	3013	16	50
20	2801	45	2919	55	0449	18	0480	41	3351	44	2997	16	40
30	2847	46	2973	54	0467	18	0438	42	3308	43	2981	16	30
40	2893	46	3028	55	0485	18	0397	41	3264	44	2965	16	20
50	2938	45	3082	54	0503	18	0356	41	3220	44	2949	16	10
27 0	0.332984	46	0.353137	55	1.060521	18	3.00315	41	2.83176	44	0.942932	17	**33** 0
10	3030	46	3191	54	0540	19	0273	42	3133	43	2916	16	50
20	3076	46	3246	55	0558	18	0232	41	3089	44	2900	16	40
30	3121	45	3300	54	0576	18	0191	41	3045	44	2884	16	30
40	3167	46	3355	55	0594	18	0150	41	3002	43	2868	16	20
50	3213	46	3409	54	0612	18	0109	41	2958	44	2852	16	10
28 0	0.333258	45	0.353464	55	1.060630	18	3.00067	42	2.82914	44	0.942836	16	**32** 0
10	3304	46	3519	55	0649	19	3.00026	41	2871	43	2819	17	50
20	3350	46	3573	54	0667	18	2.99985	41	2827	44	2803	16	40
30	3396	46	3628	55	0685	18	9944	41	2783	44	2787	16	30
40	3441	45	3682	54	0703	18	9903	41	2740	43	2771	16	20
50	3487	46	3737	55	0721	18	9862	41	2696	44	2755	16	10
29 0	0.333533	46	0.353791	54	1.060739	18	2.99821	41	2.82653	43	0.942739	16	**31** 0
10	3578	45	3846	55	0758	19	9780	41	2609	44	2722	17	50
20	3624	46	3900	54	0776	18	9739	41	2565	44	2706	16	40
30	3670	46	3955	55	0794	18	9698	41	2522	43	2690	16	30
40	3715	45	4009	54	0812	18	9656	42	2478	44	2674	16	20
50	3761	46	4064	55	0830	18	9615	41	2435	43	2658	16	10
30 0	0.333807	46	0.354119	55	1.060849	19	2.99574	41	2.82391	44	0.942641	17	**30** 0
	cos		cotg		cosec		sec		tang		sin		

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

18	
1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

70°

19°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.333807		0.354119		1.060849		2.99574		2.82391		0.942641		**30′** 0″
10	3853	46	4173	54	0867	18	9533	41	2348	43	2625	16	50
20	3898	45	4228	55	0885	18	9492	41	2304	44	2609	16	40
30	3944	46	4282	54	0903	18	9451	41	2261	43	2593	16	30
40	3990	46	4337	55	0922	19	9410	41	2217	44	2577	16	20
50	4035	45	4391	54	0940	18	9370	40	2174	43	2561	16	10
31 0	0.334081	46	0.354446	55	1.060958	18	2.99329	41	2.82130	44	0.942544	17	**29** 0
10	4127	46	4501	55	0976	18	9288	41	2087	43	2528	16	50
20	4172	45	4555	54	0995	19	9247	41	2044	43	2512	16	40
30	4218	46	4610	55	1013	18	9206	41	2000	44	2496	16	30
40	4264	46	4664	54	1031	18	9165	41	1957	43	2480	16	20
50	4310	46	4719	55	1049	18	9124	41	1913	44	2463	17	10
32 0	0.334355	45	0.354773	54	1.061067	18	2.99083	41	2.81870	43	0.942447	16	**28** 0
10	4401	46	4828	55	1086	19	9042	41	1827	43	2431	16	50
20	4447	46	4883	55	1104	18	9001	41	1783	44	2415	16	40
30	4492	45	4937	54	1122	18	8961	40	1740	43	2398	17	30
40	4538	46	4992	55	1141	19	8920	41	1697	43	2382	16	20
50	4584	46	5046	54	1159	18	8879	41	1653	44	2366	16	10
33 0	0.334629	45	0.355101	55	1.061177	18	2.98838	41	2.81610	43	0.942350	16	**27** 0
10	4675	46	5156	55	1195	18	8797	41	1567	43	2334	16	50
20	4721	46	5210	54	1214	19	8757	40	1523	44	2317	17	40
30	4766	45	5265	55	1232	18	8716	41	1480	43	2301	16	30
40	4812	46	5319	54	1250	18	8675	41	1437	43	2285	16	20
50	4858	46	5374	55	1268	18	8634	41	1394	43	2269	16	10
34 0	0.334903	45	0.355429	55	1.061287	19	2.98594	40	2.81350	44	0.942252	17	**26** 0
10	4949	46	5483	54	1305	18	8553	41	1307	43	2236	16	50
20	4995	46	5538	55	1323	18	8512	41	1264	43	2220	16	40
30	5040	45	5592	54	1342	19	8471	41	1221	43	2204	16	30
40	5086	46	5647	55	1360	18	8431	40	1178	43	2187	17	20
50	5132	46	5702	55	1378	18	8390	41	1135	43	2171	16	10
35 0	0.335178	46	0.355756	54	1.061396	18	2.98349	41	2.81091	44	0.942155	16	**25** 0
10	5223	45	5811	55	1415	19	8309	40	1048	43	2139	16	50
20	5269	46	5865	54	1433	18	8268	41	1005	43	2122	17	40
30	5315	46	5920	55	1451	18	8227	41	0962	43	2106	16	30
40	5360	45	5975	55	1470	19	8187	40	0919	43	2090	16	20
50	5406	46	6029	54	1488	18	8146	41	0876	43	2074	16	10
36 0	0.335452	46	0.356084	55	1.061506	18	2.98106	40	2.80833	43	0.942057	17	**24** 0
10	5497	45	6139	55	1525	19	8065	41	0790	43	2041	16	50
20	5543	46	6193	54	1543	18	8024	41	0746	44	2025	16	40
30	5589	46	6248	55	1561	18	7984	40	0703	43	2009	16	30
40	5634	45	6303	55	1580	19	7943	41	0660	43	1992	17	20
50	5680	46	6357	54	1598	18	7903	40	0617	43	1976	16	10
37 0	0.335726	46	0.356412	55	1.061616	18	2.97862	41	2.80574	43	0.941960	16	**23** 0
10	5771	45	6466	54	1635	19	7822	40	0531	43	1944	16	50
20	5817	46	6521	55	1653	18	7781	41	0488	43	1927	17	40
30	5863	46	6576	55	1671	18	7741	40	0445	43	1911	16	30
40	5908	45	6630	54	1690	19	7700	41	0402	43	1895	16	20
50	5954	46	6685	55	1708	18	7660	40	0359	43	1878	17	10
38 0	0.336000	46	0.356740	55	1.061727	19	2.97619	41	2.80316	43	0.941862	16	**22** 0
10	6045	45	6794	54	1745	18	7579	40	0274	42	1846	16	50
20	6091	46	6849	55	1763	18	7539	40	0231	43	1830	16	40
30	6137	46	6904	55	1782	19	7498	41	0188	43	1813	17	30
40	6182	45	6958	54	1800	18	7458	40	0145	43	1797	16	20
50	6228	46	7013	55	1818	18	7417	41	0102	43	1781	16	10
39 0	0.336274	46	0.357068	55	1.061837	19	2.97377	40	2.80059	43	0.941764	17	**21** 0
10	6319	45	7122	54	1855	18	7337	40	2.80016	43	1748	16	50
20	6365	46	7177	55	1874	19	7296	41	2.79973	43	1732	16	40
30	6411	46	7232	55	1892	18	7256	40	9930	43	1715	17	30
40	6456	45	7286	54	1910	18	7216	40	9888	42	1699	16	20
50	6502	46	7341	55	1929	19	7175	41	9845	43	1683	16	10
40 0	0.336547	45	0.357396	55	1.061947	18	2.97135	40	2.79802	43	0.941666	17	**20** 0
	cos		cotg		cosec		sec		tang		sin		

17		19		41		43		44		46		55	
1	1.7	1	1.9	1	4.1	1	4.3	1	4.4	1	4.6	1	5.5
2	3.4	2	3.8	2	8.2	2	8.6	2	8.8	2	9.2	2	11.0
3	5.1	3	5.7	3	12.3	3	12.9	3	13.2	3	13.8	3	16.5
4	6.8	4	7.6	4	16.4	4	17.2	4	17.6	4	18.4	4	22.0
5	8.5	5	9.5	5	20.5	5	21.5	5	22.0	5	23.0	5	27.5
6	10.2	6	11.4	6	24.6	6	25.8	6	26.4	6	27.6	6	33.0
7	11.9	7	13.3	7	28.7	7	30.1	7	30.8	7	32.2	7	38.5
8	13.6	8	15.2	8	32.8	8	34.4	8	35.2	8	36.8	8	44.0
9	15.3	9	17.1	9	36.9	9	38.7	9	39.6	9	41.4	9	49.5

70°

19°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.336547		0.357396		1.061947		2.97135		2.79802		0.941666		**20′** 0″
10	6593	46	7450	54	1965	18	7095	40	9759	43	1650	16	50
20	6639	46	7505	55	1984	19	7054	41	9716	43	1634	16	40
30	6684	45	7560	55	2002	18	7014	40	9674	42	1618	16	30
40	6730	46	7614	54	2021	19	6974	40	9631	43	1601	17	20
50	6776	46	7669	55	2039	18	6934	40	9588	43	1585	16	10
41 0	0.336821	45	0.357724	55	1.062058	19	2.96893	41	2.79545	43	0.941569	16	**19** 0
10	6867	46	7778	54	2076	18	6853	40	9503	42	1552	17	50
20	6913	46	7833	55	2094	18	6813	40	9460	43	1536	16	40
30	6958	45	7888	55	2113	19	6773	40	9417	43	1520	16	30
40	7004	46	7942	54	2131	18	6732	41	9375	42	1503	17	20
50	7050	46	7997	55	2150	19	6692	40	9332	43	1487	16	10
42 0	0.337095	45	0.358052	55	1.062168	18	2.96652	40	2.79289	43	0.941471	16	**18** 0
10	7141	46	8107	55	2187	19	6612	40	9247	42	1454	17	50
20	7187	46	8161	54	2205	18	6572	40	9204	43	1438	16	40
30	7232	45	8216	55	2223	18	6532	40	9161	43	1422	16	30
40	7278	46	8271	55	2242	19	6491	41	9119	42	1405	17	20
50	7323	45	8325	54	2260	18	6451	40	9076	43	1389	16	10
43 0	0.337369	46	0.358380	55	1.062279	19	2.96411	40	2.79033	43	0.941372	17	**17** 0
10	7415	46	8435	55	2297	18	6371	40	8991	42	1356	16	50
20	7460	45	8489	54	2316	19	6331	40	8948	43	1340	16	40
30	7506	46	8544	55	2334	18	6291	40	8906	42	1323	17	30
40	7552	46	8599	55	2353	19	6251	40	8863	43	1307	16	20
50	7597	45	8654	55	2371	18	6211	40	8821	42	1291	16	10
44 0	0.337643	46	0.358708	54	1.062390	19	2.96171	40	2.78778	43	0.941274	17	**16** 0
10	7689	46	8763	55	2408	18	6131	40	8736	42	1258	16	50
20	7734	45	8818	55	2427	19	6091	40	8693	43	1242	16	40
30	7780	46	8873	55	2445	18	6051	40	8650	43	1225	17	30
40	7825	45	8927	54	2464	19	6011	40	8608	42	1209	16	20
50	7871	46	8982	55	2482	18	5971	40	8566	42	1192	17	10
45 0	0.337917	46	0.359037	55	1.062501	19	2.95931	40	2.78523	43	0.941176	16	**15** 0
10	7962	45	9091	54	2519	18	5891	40	8481	42	1160	16	50
20	8008	46	9146	55	2538	19	5851	40	8438	43	1143	17	40
30	8054	46	9201	55	2556	18	5811	40	8396	42	1127	16	30
40	8099	45	9256	55	2575	19	5771	40	8353	43	1110	17	20
50	8145	46	9310	54	2593	18	5731	40	8311	42	1094	16	10
46 0	0.338190	45	0.359365	55	1.062612	19	2.95691	40	2.78269	42	0.941078	16	**14** 0
10	8236	46	9420	55	2630	18	5651	40	8226	43	1061	17	50
20	8282	46	9475	55	2649	19	5612	39	8184	42	1045	16	40
30	8327	45	9529	54	2667	18	5572	40	8141	43	1028	17	30
40	8373	46	9584	55	2686	19	5532	40	8099	42	1012	16	20
50	8419	46	9639	55	2704	18	5492	40	8057	42	0996	16	10
47 0	0.338464	45	0.359694	55	1.062723	19	2.95452	40	2.78014	43	0.940979	17	**13** 0
10	8510	46	9748	54	2741	18	5412	40	7972	42	0963	16	50
20	8555	45	9803	55	2760	19	5373	39	7930	42	0946	17	40
30	8601	46	9858	55	2778	18	5333	40	7887	43	0930	16	30
40	8647	46	9913	55	2797	19	5293	40	7845	42	0914	16	20
50	8692	45	0.359967	54	2815	18	5253	40	7803	42	0897	17	10
48 0	0.338738	46	0.360022	55	1.062834	19	2.95213	40	2.77761	42	0.940881	16	**12** 0
10	8784	46	0077	55	2852	18	5174	39	7718	43	0864	17	50
20	8829	45	0132	55	2871	19	5134	40	7676	42	0848	16	40
30	8875	46	0186	54	2890	19	5094	40	7634	42	0831	17	30
40	8920	45	0241	55	2908	18	5055	39	7592	42	0815	16	20
50	8966	46	0296	55	2927	19	5015	40	7550	42	0799	16	10
49 0	0.339012	46	0.360351	55	1.062945	18	2.94975	40	2.77507	43	0.940782	17	**11** 0
10	9057	45	0406	55	2964	19	4935	40	7465	42	0766	16	50
20	9103	46	0460	54	2982	18	4896	39	7423	42	0749	17	40
30	9148	45	0515	55	3001	19	4856	40	7381	42	0733	16	30
40	9194	46	0570	55	3020	19	4817	39	7339	42	0716	17	20
50	9240	46	0625	55	3038	18	4777	40	7297	42	0700	16	10
50 0	0.339285	45	0.360679	54	1.063057	19	2.94737	40	2.77254	43	0.940684	16	**10** 0
	cos		cotg		cosec		sec		tang		sin		

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

18	
1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

39	
1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

70°

19°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.339285		0.360679		1.063057		2.94737		2.77254		0.940684		**10′** 0″
10	9331	46	0734	55	3075	18	4698	39	7212	42	0667	17	50
20	9376	45	0789	55	3094	19	4658	40	7170	42	0651	16	40
30	9422	46	0844	55	3113	19	4618	40	7128	42	0634	17	30
40	9468	46	0899	55	3131	18	4579	39	7086	42	0618	16	20
50	9513	45	0953	54	3150	19	4539	40	7044	42	0601	17	10
51 0	0.339559	46	0.361008	55	1.063168	18	2.94500	39	2.77002	42	0.940585	16	**9** 0
10	9604	45	1063	55	3187	19	4460	40	6960	42	0568	17	50
20	9650	46	1118	55	3206	19	4421	39	6918	42	0552	16	40
30	9696	46	1173	55	3224	18	4381	40	6876	42	0535	17	30
40	9741	45	1227	54	3243	19	4342	39	6834	42	0519	16	20
50	9787	46	1282	55	3261	18	4302	40	6792	42	0502	17	10
52 0	0.339832	45	0.361337	55	1.063280	19	2.94263	39	2.76750	42	0.940486	16	**8** 0
10	9878	46	1392	55	3299	19	4223	40	6708	42	0470	16	50
20	9924	46	1447	55	3317	18	4184	39	6666	42	0453	17	40
30	0.339969	45	1502	55	3336	19	4144	40	6624	42	0437	16	30
40	0.340015	46	1556	54	3355	19	4105	39	6582	42	0420	17	20
50	0060	45	1611	55	3373	18	4065	40	6540	42	0404	16	10
53 0	0.340106	46	0.361666	55	1.063392	19	2.94026	39	2.76498	42	0.940387	17	**7** 0
10	0152	46	1721	55	3411	19	3987	39	6456	42	0371	16	50
20	0197	45	1776	55	3429	18	3947	40	6414	42	0354	17	40
30	0243	46	1830	54	3448	19	3908	39	6373	41	0338	16	30
40	0288	45	1885	55	3466	18	3868	40	6331	42	0321	17	20
50	0334	46	1940	55	3485	19	3829	39	6289	42	0305	16	10
54 0	0.340380	46	0.361995	55	1.063504	19	2.93790	39	2.76247	42	0.940288	17	**6** 0
10	0425	45	2050	55	3522	18	3750	40	6205	42	0272	16	50
20	0471	46	2105	55	3541	19	3711	39	6163	42	0255	17	40
30	0516	45	2159	54	3560	19	3672	39	6121	42	0239	16	30
40	0562	46	2214	55	3578	18	3632	40	6080	41	0222	17	20
50	0607	45	2269	55	3597	19	3593	39	6038	42	0206	16	10
55 0	0.340653	46	0.362324	55	1.063616	19	2.93554	39	2.75996	42	0.940189	17	**5** 0
10	0699	46	2379	55	3635	19	3515	39	5954	42	0173	16	50
20	0744	45	2434	55	3653	18	3475	40	5913	41	0156	17	40
30	0790	46	2489	55	3672	19	3436	39	5871	42	0140	16	30
40	0835	45	2543	54	3691	19	3397	39	5829	42	0123	17	20
50	0881	46	2598	55	3709	18	3358	39	5787	42	0106	17	10
56 0	0.340927	46	0.362653	55	1.063728	19	2.93318	40	2.75746	41	0.940090	16	**4** 0
10	0972	45	2708	55	3747	19	3279	39	5704	42	0073	17	50
20	1018	46	2763	55	3765	18	3240	39	5662	42	0057	16	40
30	1063	45	2818	55	3784	19	3201	39	5621	41	0040	17	30
40	1109	46	2873	55	3803	19	3162	39	5579	42	0024	16	20
50	1154	45	2927	54	3822	19	3122	40	5537	42	0.940007	17	10
57 0	0.341200	46	0.362982	55	1.063840	18	2.93083	39	2.75496	41	0.939991	16	**3** 0
10	1246	46	3037	55	3859	19	3044	39	5454	42	9974	17	50
20	1291	45	3092	55	3878	19	3005	39	5412	42	9958	16	40
30	1337	46	3147	55	3896	18	2966	39	5371	41	9941	17	30
40	1382	45	3202	55	3915	19	2927	39	5329	42	9925	16	20
50	1428	46	3257	55	3934	19	2888	39	5287	42	9908	17	10
58 0	0.341473	45	0.363312	55	1.063953	19	2.92849	39	2.75246	41	0.939891	17	**2** 0
10	1519	46	3366	54	3971	18	2810	39	5204	42	9875	16	50
20	1565	46	3421	55	3990	19	2770	40	5163	41	9858	17	40
30	1610	45	3476	55	4009	19	2731	39	5121	42	9842	16	30
40	1656	46	3531	55	4028	19	2692	39	5080	41	9825	17	20
50	1701	45	3586	55	4046	18	2653	39	5038	42	9809	16	10
59 0	0.341747	46	0.363641	55	1.064065	19	2.92614	39	2.74997	41	0.939792	17	**1** 0
10	1792	45	3696	55	4084	19	2575	39	4955	42	9776	16	50
20	1838	46	3751	55	4103	19	2536	39	4914	41	9759	17	40
30	1883	45	3806	55	4121	18	2497	39	4872	42	9742	17	30
40	1929	46	3860	54	4140	19	2458	39	4831	41	9726	16	20
50	1975	46	3915	55	4159	19	2419	39	4789	42	9709	17	10
60 0	0.342020	45	0.363970	55	1.064178	19	2.92380	39	2.74748	41	0.939693	16	**0** 0
	cos		cotg		cosec		sec		tang		sin		

17	
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3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

40	
1	4.0
2	8.0
3	12.0
4	16.0
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6	24.0
7	28.0
8	32.0
9	36.0

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

43	
1	4.3
2	8.6
3	12.9
4	17.2
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6	25.8
7	30.1
8	34.4
9	38.7

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

70°

20°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.342020		0.363970		1.064178		2.92380		2.74748		0.939693		**60′** 0″
10	2066	46	4025	55	4197	19	2342	38	4706	42	9676	17	50
20	2111	45	4080	55	4215	18	2303	39	4665	41	9659	17	40
30	2157	46	4135	55	4234	19	2264	39	4623	42	9643	16	30
40	2202	45	4190	55	4253	19	2225	39	4582	41	9626	17	20
50	2248	46	4245	55	4272	19	2186	39	4541	41	9610	16	10
1 0	0.342293	45	0.364300	55	1.064290	18	2.92147	39	2.74499	42	0.939593	17	**59** 0
10	2339	46	4355	55	4309	19	2108	39	4458	41	9576	17	50
20	2385	46	4410	55	4328	19	2069	39	4417	41	9560	16	40
30	2430	45	4464	54	4347	19	2030	39	4375	42	9543	17	30
40	2476	46	4519	55	4366	19	1992	38	4334	41	9527	16	20
50	2521	45	4574	55	4385	19	1953	39	4293	41	9510	17	10
2 0	0.342567	46	0.364629	55	1.064403	18	2.91914	39	2.74251	42	0.939493	17	**58** 0
10	2612	45	4684	55	4422	19	1875	39	4210	41	9477	16	50
20	2658	46	4739	55	4441	19	1836	39	4169	41	9460	17	40
30	2703	45	4794	55	4460	19	1797	39	4127	42	9444	16	30
40	2749	46	4849	55	4479	19	1759	38	4086	41	9427	17	20
50	2795	46	4904	55	4497	18	1720	39	4045	41	9410	17	10
3 0	0.342840	45	0.364959	55	1.064516	19	2.91681	39	2.74004	41	0.939394	16	**57** 0
10	2886	46	5014	55	4535	19	1642	39	3962	42	9377	17	50
20	2931	45	5069	55	4554	19	1604	38	3921	41	9361	16	40
30	2977	46	5124	55	4573	19	1565	39	3880	41	9344	17	30
40	3022	45	5179	55	4592	19	1526	39	3839	41	9327	17	20
50	3068	46	5234	55	4611	19	1488	38	3797	42	9311	16	10
4 0	0.343113	45	0.365288	54	1.064629	18	2.91449	39	2.73756	41	0.939294	17	**56** 0
10	3159	46	5343	55	4648	19	1410	39	3715	41	9277	17	50
20	3204	45	5398	55	4667	19	1372	38	3674	41	9261	16	40
30	3250	46	5453	55	4686	19	1333	39	3633	41	9244	17	30
40	3295	45	5508	55	4705	19	1294	39	3592	41	9227	17	20
50	3341	46	5563	55	4724	19	1256	38	3550	42	9211	16	10
5 0	0.343387	46	0.365618	55	1.064743	19	2.91217	39	2.73509	41	0.939194	17	**55** 0
10	3432	45	5673	55	4761	18	1178	39	3468	41	9178	16	50
20	3478	46	5728	55	4780	19	1140	38	3427	41	9161	17	40
30	3523	45	5783	55	4799	19	1101	39	3386	41	9144	17	30
40	3569	46	5838	55	4818	19	1063	38	3345	41	9128	16	20
50	3614	45	5893	55	4837	19	1024	39	3304	41	9111	17	10
6 0	0.343660	46	0.365948	55	1.064856	19	2.90986	38	2.73263	41	0.939094	17	**54** 0
10	3705	45	6003	55	4875	19	0947	39	3222	41	9078	16	50
20	3751	46	6058	55	4894	19	0908	39	3181	41	9061	17	40
30	3796	45	6113	55	4913	19	0870	38	3140	41	9044	17	30
40	3842	46	6168	55	4931	18	0831	39	3099	41	9028	16	20
50	3887	45	6223	55	4950	19	0793	38	3058	41	9011	17	10
7 0	0.343933	46	0.366278	55	1.064969	19	2.90754	39	2.73017	41	0.938994	17	**53** 0
10	3978	45	6333	55	4988	19	0716	38	2976	41	8978	16	50
20	4024	46	6388	55	5007	19	0677	39	2935	41	8961	17	40
30	4069	45	6443	55	5026	19	0639	38	2894	41	8944	17	30
40	4115	46	6498	55	5045	19	0601	38	2853	41	8928	16	20
50	4160	45	6553	55	5064	19	0562	39	2812	41	8911	17	10
8 0	0.344206	46	0.366608	55	1.065083	19	2.90524	38	2.72771	41	0.938894	17	**52** 0
10	4251	45	6663	55	5102	19	0485	39	2730	41	8877	17	50
20	4297	46	6718	55	5121	19	0447	38	2689	41	8861	16	40
30	4343	46	6773	55	5140	19	0409	38	2648	41	8844	17	30
40	4388	45	6828	55	5159	19	0370	39	2607	41	8827	17	20
50	4434	46	6883	55	5177	18	0332	38	2567	40	8811	16	10
9 0	0.344479	45	0.366938	55	1.065196	19	2.90293	39	2.72526	41	0.938794	17	**51** 0
10	4525	46	6993	55	5215	19	0255	38	2485	41	8777	17	50
20	4570	45	7048	55	5234	19	0217	38	2444	41	8761	16	40
30	4616	46	7103	55	5253	19	0178	39	2403	41	8744	17	30
40	4661	45	7158	55	5272	19	0140	38	2362	41	8727	17	20
50	4707	46	7213	55	5291	19	0102	38	2322	40	8710	17	10
10 0	0.344752	45	0.367268	55	1.065310	19	2.90063	39	2.72281	41	0.938694	16	**50** 0
	cos		cotg		cosec		sec		tang		sin		

16

1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

18

1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

20

1	2.0
2	4.0
3	6.0
4	8.0
5	10.0
6	12.0
7	14.0
8	16.0
9	18.0

38

1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40

1	4.0
2	8.0
3	12.0
4	16.0
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6	24.0
7	28.0
8	32.0
9	36.0

42

1	4.2
2	8.4
3	12.6
4	16.8
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7	29.4
8	33.6
9	37.8

46

1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

55

1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

69°

20°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.344752		0.367268		1.065310		2.90063		2.72281		0.938694		**50′** 0″
10	4798	46	7323	55	5329	19	2.90025	38	2240	41	8677	17	50
20	4843	45	7378	55	5348	19	2.89987	38	2199	41	8660	17	40
30	4889	46	7433	55	5367	19	9949	38	2158	41	8644	16	30
40	4934	45	7488	55	5386	19	9910	39	2118	40	8627	17	20
50	4980	46	7543	55	5405	19	9872	38	2077	41	8610	17	10
11 0	0.345025	45	0.367598	55	1.065424	19	2.89834	38	2.72036	41	0.938593	17	**49** 0
10	5071	46	7653	55	5443	19	9796	38	1995	41	8577	16	50
20	5116	45	7708	55	5462	19	9757	39	1955	40	8560	17	40
30	5162	46	7763	55	5481	19	9719	38	1914	41	8543	17	30
40	5207	45	7818	55	5500	19	9681	38	1873	41	8526	17	20
50	5253	46	7873	55	5519	19	9643	38	1833	40	8510	16	10
12 0	0.345298	45	0.367928	55	1.065538	19	2.89605	38	2.71792	41	0.938493	17	**48** 0
10	5344	46	7983	55	5557	19	9567	38	1751	41	8476	17	50
20	5389	45	8038	55	5576	19	9528	39	1711	40	8460	16	40
30	5435	46	8094	56	5595	19	9490	38	1670	41	8443	17	30
40	5480	45	8149	55	5614	19	9452	38	1629	41	8426	17	20
50	5526	46	8204	55	5633	19	9414	38	1589	40	8409	17	10
13 0	0.345571	45	0.368259	55	1.065652	19	2.89376	38	2.71548	41	0.938393	16	**47** 0
10	5617	46	8314	55	5671	19	9338	38	1508	40	8376	17	50
20	5662	45	8369	55	5690	19	9300	38	1467	41	8359	17	40
30	5708	46	8424	55	5709	19	9262	38	1427	40	8342	17	30
40	5753	45	8479	55	5728	19	9224	38	1386	41	8326	16	20
50	5799	46	8534	55	5747	19	9186	38	1345	41	8309	17	10
14 0	0.345844	45	0.368589	55	1.065766	19	2.89148	38	2.71305	40	0.938292	17	**46** 0
10	5890	46	8644	55	5785	19	9110	38	1264	41	8275	17	50
20	5935	45	8699	55	5804	19	9072	38	1224	40	8258	17	40
30	5981	46	8754	55	5823	19	9034	38	1183	41	8242	16	30
40	6026	45	8809	55	5843	20	8996	38	1143	40	8225	17	20
50	6072	46	8864	55	5862	19	8958	38	1102	41	8208	17	10
15 0	0.346117	45	0.368919	55	1.065881	19	2.88920	38	2.71062	40	0.938191	17	**45** 0
10	6163	46	8975	56	5900	19	8882	38	1021	41	8175	16	50
20	6208	45	9030	55	5919	19	8844	38	0981	40	8158	17	40
30	6254	46	9085	55	5938	19	8806	38	0940	41	8141	17	30
40	6299	45	9140	55	5957	19	8768	38	0900	40	8124	17	20
50	6344	45	9195	55	5976	19	8730	38	0860	40	8107	17	10
16 0	0.346390	46	0.369250	55	1.065995	19	2.88692	38	2.70819	41	0.938091	16	**44** 0
10	6435	45	9305	55	6014	19	8654	38	0779	40	8074	17	50
20	6481	46	9360	55	6033	19	8616	38	0738	41	8057	17	40
30	6526	45	9415	55	6052	19	8578	38	0698	40	8040	17	30
40	6572	46	9470	55	6071	19	8540	38	0658	40	8023	17	20
50	6617	45	9525	55	6091	20	8503	37	0617	41	8007	16	10
17 0	0.346663	46	0.369581	56	1.066110	19	2.88465	38	2.70577	40	0.937990	17	**43** 0
10	6708	45	9636	55	6129	19	8427	38	0537	40	7973	17	50
20	6754	46	9691	55	6148	19	8389	38	0496	41	7956	17	40
30	6799	45	9746	55	6167	19	8351	38	0456	40	7939	17	30
40	6845	46	9801	55	6186	19	8313	38	0416	40	7923	16	20
50	6890	45	9856	55	6205	19	8276	37	0375	41	7906	17	10
18 0	0.346936	46	0.369911	55	1.066224	19	2.88238	38	2.70335	40	0.937889	17	**42** 0
10	6981	45	0.369966	55	6243	19	8200	38	0295	40	7872	17	50
20	7027	46	0.370021	55	6263	20	8162	38	0255	40	7855	17	40
30	7072	45	0077	56	6282	19	8125	37	0214	41	7838	17	30
40	7118	46	0132	55	6301	19	8087	38	0174	40	7822	16	20
50	7163	45	0187	55	6320	19	8049	38	0134	40	7805	17	10
19 0	0.347208	45	0.370242	55	1.066339	19	2.88011	38	2.70094	40	0.937788	17	**41** 0
10	7254	46	0297	55	6358	19	7974	37	0053	41	7771	17	50
20	7299	45	0352	55	6377	19	7936	38	2.70013	40	7754	17	40
30	7345	46	0407	55	6397	20	7898	38	2.69973	40	7737	17	30
40	7390	45	0462	55	6416	19	7861	37	9933	40	7721	16	20
50	7436	46	0518	56	6435	19	7823	38	9893	40	7704	17	10
20 0	0.347481	45	0.370573	55	1.066454	19	2.87785	38	2.69853	40	0.937687	17	**40** 0
	cos		cotg		cosec		sec		tang		sin		

17	
1	1.7
2	3.4
3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

37	
1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

39	
1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

20°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.347481		0.370573		1.066454		2.87785		2.69853		0.937687		**40′** 0″
10	7527	46	0628	55	6473	19	7748	37	9812	41	7670	17	50
20	7572	45	0683	55	6492	19	7710	38	9772	40	7653	17	40
30	7618	46	0738	55	6512	20	7672	38	9732	40	7636	17	30
40	7663	45	0793	55	6531	19	7635	37	9692	40	7620	16	20
50	7709	46	0848	55	6550	19	7597	38	9652	40	7603	17	10
21 0	0.347754	45	0.370904	56	1.066569	19	2.87560	37	2.69612	40	0.937586	17	**39** 0
10	7799	45	0959	55	6588	19	7522	38	9572	40	7569	17	50
20	7845	46	1014	55	6607	19	7484	38	9532	40	7552	17	40
30	7890	45	1069	55	6627	20	7447	37	9492	40	7535	17	30
40	7936	46	1124	55	6646	19	7409	38	9452	40	7518	17	20
50	7981	45	1179	55	6665	19	7372	37	9411	41	7501	17	10
22 0	0.348027	46	0.371235	56	1.066684	19	2.87334	38	2.69371	40	0.937485	16	**38** 0
10	8072	45	1290	55	6703	19	7297	37	9331	40	7468	17	50
20	8118	46	1345	55	6723	20	7259	38	9291	40	7451	17	40
30	8163	45	1400	55	6742	19	7222	37	9251	40	7434	17	30
40	8208	45	1455	55	6761	19	7184	38	9211	40	7417	17	20
50	8254	46	1510	55	6780	19	7147	37	9171	40	7400	17	10
23 0	0.348299	45	0.371566	56	1.066799	19	2.87109	38	2.69131	40	0.937383	17	**37** 0
10	8345	46	1621	55	6819	20	7072	37	9092	39	7366	17	50
20	8390	45	1676	55	6838	19	7034	38	9052	40	7350	16	40
30	8436	46	1731	55	6857	19	6997	37	9012	40	7333	17	30
40	8481	45	1786	55	6876	19	6960	37	8972	40	7316	17	20
50	8527	46	1841	55	6896	20	6922	38	8932	40	7299	17	10
24 0	0.348572	45	0.371897	56	1.066915	19	2.86885	37	2.68892	40	0.937282	17	**36** 0
10	8617	45	1952	55	6934	19	6847	38	8852	40	7265	17	50
20	8663	46	2007	55	6953	19	6810	37	8812	40	7248	17	40
30	8708	45	2062	55	6972	19	6773	37	8772	40	7231	17	30
40	8754	46	2117	55	6992	20	6735	38	8732	40	7214	17	20
50	8799	45	2173	56	7011	19	6698	37	8693	39	7197	17	10
25 0	0.348845	46	0.372228	55	1.067030	19	2.86661	37	2.68653	40	0.937181	16	**35** 0
10	8890	45	2283	55	7050	20	6623	38	8613	40	7164	17	50
20	8936	46	2338	55	7069	19	6586	37	8573	40	7147	17	40
30	8981	45	2393	55	7088	19	6549	37	8533	40	7130	17	30
40	9026	45	2449	56	7107	19	6511	38	8493	40	7113	17	20
50	9072	46	2504	55	7127	20	6474	37	8454	39	7096	17	10
26 0	0.349117	45	0.372559	55	1.067146	19	2.86437	37	2.68414	40	0.937079	17	**34** 0
10	9163	46	2614	55	7165	19	6399	38	8374	40	7062	17	50
20	9208	45	2669	55	7184	19	6362	37	8334	40	7045	17	40
30	9254	46	2725	56	7204	20	6325	37	8295	39	7028	17	30
40	9299	45	2780	55	7223	19	6288	37	8255	40	7011	17	20
50	9344	45	2835	55	7242	19	6250	38	8215	40	6994	17	10
27 0	0.349390	46	0.372890	55	1.067262	20	2.86213	37	2.68175	40	0.936977	17	**33** 0
10	9435	45	2946	56	7281	19	6176	37	8136	39	6961	16	50
20	9481	46	3001	55	7300	19	6139	37	8096	40	6944	17	40
30	9526	45	3056	55	7319	19	6102	37	8056	40	6927	17	30
40	9572	46	3111	55	7339	20	6064	38	8017	39	6910	17	20
50	9617	45	3166	55	7358	19	6027	37	7977	40	6893	17	10
28 0	0.349662	45	0.373222	56	1.067377	19	2.85990	37	2.67937	40	0.936876	17	**32** 0
10	9708	46	3277	55	7397	20	5953	37	7898	39	6859	17	50
20	9753	45	3332	55	7416	19	5916	37	7858	40	6842	17	40
30	9799	46	3387	55	7435	19	5879	37	7818	40	6825	17	30
40	9844	45	3443	56	7455	20	5842	37	7779	39	6808	17	20
50	9889	45	3498	55	7474	19	5805	37	7739	40	6791	17	10
29 0	0.349935	46	0.373553	55	1.067493	19	2.85767	38	2.67700	39	0.936774	17	**31** 0
10	0.349980	45	3608	55	7513	20	5730	37	7660	40	6757	17	50
20	0.350026	46	3664	56	7532	19	5693	37	7620	40	6740	17	40
30	0071	45	3719	55	7551	19	5656	37	7581	39	6723	17	30
40	0117	46	3774	55	7571	20	5619	37	7541	40	6706	17	20
50	0162	45	3829	55	7590	19	5582	37	7502	39	6689	17	10
30 0	0.350207	45	0.373885	56	1.067609	19	2.85545	37	2.67462	40	0.936672	17	**30** 0
	cos		cotg		cosec		sec		tang		sin		

16	
1	1.6
2	3.2
3	4.8
4	6.4
5	8.0
6	9.6
7	11.2
8	12.8
9	14.4

18	
1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
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8	32.0
9	36.0

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

69°

20°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.350207		0.373885		1.067609		2.85545		2.67462		0.936672		**30′** 0″
10	0253	46	3940	55	7629	20	5508	37	7423	39	6655	17	50
20	0298	45	3995	55	7648	19	5471	37	7383	40	6638	17	40
30	0344	46	4050	55	7667	19	5434	37	7344	39	6621	17	30
40	0389	45	4106	56	7687	20	5397	37	7304	40	6604	17	20
50	0434	45	4161	55	7706	19	5360	37	7265	39	6587	17	10
31 0	0.350480	46	0.374216	55	1.067726	20	2.85323	37	2.67225	40	0.936570	17	**29** 0
10	0525	45	4272	56	7745	19	5286	37	7186	39	6553	17	50
20	0571	46	4327	55	7764	19	5249	37	7146	40	6536	17	40
30	0616	45	4382	55	7784	20	5212	37	7107	39	6519	17	30
40	0661	45	4437	55	7803	19	5175	37	7067	40	6502	17	20
50	0707	46	4493	56	7822	19	5138	37	7028	39	6485	17	10
32 0	0.350752	45	0.374548	55	1.067842	20	2.85102	36	2.66989	39	0.936468	17	**28** 0
10	0798	46	4603	55	7861	19	5065	37	6949	40	6451	17	50
20	0843	45	4658	55	7881	20	5028	37	6910	39	6434	17	40
30	0888	45	4714	56	7900	19	4991	37	6870	40	6417	17	30
40	0934	46	4769	55	7919	19	4954	37	6831	39	6400	17	20
50	0979	45	4824	55	7939	20	4917	37	6792	39	6383	17	10
33 0	0.351025	46	0.374880	56	1.067958	19	2.84880	37	2.66752	40	0.936366	17	**27** 0
10	1070	45	4935	55	7978	20	4843	37	6713	39	6349	17	50
20	1115	45	4990	55	7997	19	4807	36	6674	39	6332	17	40
30	1161	46	5046	56	8016	19	4770	37	6634	40	6315	17	30
40	1206	45	5101	55	8036	20	4733	37	6595	39	6298	17	20
50	1252	46	5156	55	8055	19	4696	37	6556	39	6281	17	10
34 0	0.351297	45	0.375211	55	1.068075	20	2.84659	37	2.66516	40	0.936264	17	**26** 0
10	1342	45	5267	56	8094	19	4623	36	6477	39	6247	17	50
20	1388	46	5322	55	8114	20	4586	37	6438	39	6230	17	40
30	1433	45	5377	55	8133	19	4549	37	6399	39	6213	17	30
40	1479	46	5433	56	8152	19	4512	37	6359	40	6196	17	20
50	1524	45	5488	55	8172	20	4476	36	6320	39	6179	17	10
35 0	0.351569	45	0.375543	55	1.068191	19	2.84439	37	2.66281	39	0.936162	17	**25** 0
10	1615	46	5599	56	8211	20	4402	37	6242	39	6145	17	50
20	1660	45	5654	55	8230	19	4365	37	6202	40	6128	17	40
30	1706	46	5709	55	8250	20	4329	36	6163	39	6111	17	30
40	1751	45	5765	56	8269	19	4292	37	6124	39	6094	17	20
50	1796	45	5820	55	8289	20	4255	37	6085	39	6077	17	10
36 0	0.351842	46	0.375875	55	1.068308	19	2.84219	36	2.66046	39	0.936060	17	**24** 0
10	1887	45	5931	56	8328	20	4182	37	6007	39	6042	18	50
20	1932	45	5986	55	8347	19	4145	37	5967	40	6025	17	40
30	1978	46	6041	55	8367	20	4109	36	5928	39	6008	17	30
40	2023	45	6097	56	8386	19	4072	37	5889	39	5991	17	20
50	2069	46	6152	55	8405	19	4036	36	5850	39	5974	17	10
37 0	0.352114	45	0.376207	55	1.068425	20	2.83999	37	2.65811	39	0.935957	17	**23** 0
10	2159	45	6263	56	8444	19	3962	37	5772	39	5940	17	50
20	2205	46	6318	55	8464	20	3926	36	5733	39	5923	17	40
30	2250	45	6373	55	8483	19	3889	37	5694	39	5906	17	30
40	2295	45	6429	56	8503	20	3853	36	5655	39	5889	17	20
50	2341	46	6484	55	8522	19	3816	37	5616	39	5872	17	10
38 0	0.352386	45	0.376539	55	1.068542	20	2.83780	36	2.65576	40	0.935855	17	**22** 0
10	2432	46	6595	56	8561	19	3743	37	5537	39	5838	17	50
20	2477	45	6650	55	8581	20	3707	36	5498	39	5821	17	40
30	2522	45	6705	55	8600	19	3670	37	5459	39	5803	18	30
40	2568	46	6761	56	8620	20	3634	36	5420	39	5786	17	20
50	2613	45	6816	55	8640	20	3597	37	5381	39	5769	17	10
39 0	0.352658	45	0.376872	56	1.068659	19	2.83561	36	2.65342	39	0.935752	17	**21** 0
10	2704	46	6927	55	8679	20	3524	37	5303	39	5735	17	50
20	2749	45	6982	55	8698	19	3488	36	5264	39	5718	17	40
30	2794	45	7038	56	8718	20	3451	37	5225	39	5701	17	30
40	2840	46	7093	55	8737	19	3415	36	5187	38	5684	17	20
50	2885	45	7148	55	8757	20	3378	37	5148	39	5667	17	10
40 0	0.352931	46	0.377204	56	1.068776	19	2.83342	36	2.65109	39	0.935650	17	**20** 0
	cos		cotg		cosec		sec		tang		sin		

17		19		20		37		39		41		46		56	
1	1.7	1	1.9	1	2.0	1	3.7	1	3.9	1	4.1	1	4.6	1	5.6
2	3.4	2	3.8	2	4.0	2	7.4	2	7.8	2	8.2	2	9.2	2	11.2
3	5.1	3	5.7	3	6.0	3	11.1	3	11.7	3	12.3	3	13.8	3	16.8
4	6.8	4	7.6	4	8.0	4	14.8	4	15.6	4	16.4	4	18.4	4	22.4
5	8.5	5	9.5	5	10.0	5	18.5	5	19.5	5	20.5	5	23.0	5	28.0
6	10.2	6	11.4	6	12.0	6	22.2	6	23.4	6	24.6	6	27.6	6	33.6
7	11.9	7	13.3	7	14.0	7	25.9	7	27.3	7	28.7	7	32.2	7	39.2
8	13.6	8	15.2	8	16.0	8	29.6	8	31.2	8	32.8	8	36.8	8	44.8
9	15.3	9	17.1	9	18.0	9	33.3	9	35.1	9	36.9	9	41.4	9	50.4

69°

20°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.352931		0.377204		1.068776		2.83342		2.65109		0.935650		**20′** 0″
10	2976	45	7259	55	8796	20	3305	37	5070	39	5632	18	50
20	3021	45	7315	56	8815	19	3269	36	5031	39	5615	17	40
30	3067	46	7370	55	8835	20	3233	36	4992	39	5598	17	30
40	3112	45	7425	55	8854	19	3196	37	4953	39	5581	17	20
50	3157	45	7481	56	8874	20	3160	36	4914	39	5564	17	10
41 0	0.353203	46	0.377536	55	1.068894	20	2.83124	36	2.64875	39	0.935547	17	**19** 0
10	3248	45	7592	56	8913	19	3087	37	4836	39	5530	17	50
20	3293	45	7647	55	8933	20	3051	36	4798	38	5513	17	40
30	3339	46	7702	55	8952	19	3015	36	4759	39	5495	18	30
40	3384	45	7758	56	8972	20	2978	37	4720	39	5478	17	20
50	3429	45	7813	55	8991	19	2942	36	4681	39	5461	17	10
42 0	0.353475	46	0.377869	56	1.069011	20	2.82906	36	2.64642	39	0.935444	17	**18** 0
10	3520	45	7924	55	9031	20	2869	37	4604	38	5427	17	50
20	3566	46	7979	55	9050	19	2833	36	4565	39	5410	17	40
30	3611	45	8035	56	9070	20	2797	36	4526	39	5393	17	30
40	3656	45	8090	55	9089	19	2760	37	4487	39	5375	18	20
50	3702	46	8146	56	9109	20	2724	36	4448	39	5358	17	10
43 0	0.353747	45	0.378201	55	1.069129	20	2.82688	36	2.64410	38	0.935341	17	**17** 0
10	3792	45	8256	55	9148	19	2652	36	4371	39	5324	17	50
20	3838	46	8312	56	9168	20	2616	36	4332	39	5307	17	40
30	3883	45	8367	55	9187	19	2579	37	4294	38	5290	17	30
40	3928	45	8423	56	9207	20	2543	36	4255	39	5273	17	20
50	3974	46	8478	55	9227	20	2507	36	4216	39	5255	18	10
44 0	0.354019	45	0.378534	56	1.069246	19	2.82471	36	2.64177	39	0.935238	17	**16** 0
10	4064	45	8589	55	9266	20	2435	36	4139	38	5221	17	50
20	4110	46	8644	55	9286	20	2398	37	4100	39	5204	17	40
30	4155	45	8700	56	9305	19	2362	36	4061	39	5187	17	30
40	4200	45	8755	55	9325	20	2326	36	4023	38	5170	17	20
50	4246	46	8811	56	9344	19	2290	36	3984	39	5152	18	10
45 0	0.354291	45	0.378866	55	1.069364	20	2.82254	36	2.63945	39	0.935135	17	**15** 0
10	4336	45	8922	56	9384	20	2218	36	3907	38	5118	17	50
20	4382	46	8977	55	9403	19	2182	36	3868	39	5101	17	40
30	4427	45	9032	55	9423	20	2146	36	3830	38	5084	17	30
40	4472	45	9088	56	9443	20	2109	37	3791	39	5066	18	20
50	4518	46	9143	55	9462	19	2073	36	3752	39	5049	17	10
46 0	0.354563	45	0.379199	56	1.069482	20	2.82037	36	2.63714	38	0.935032	17	**14** 0
10	4608	45	9254	55	9502	20	2001	36	3675	39	5015	17	50
20	4654	46	9310	56	9521	19	1965	36	3637	38	4998	17	40
30	4699	45	9365	55	9541	20	1929	36	3598	39	4981	17	30
40	4744	45	9421	56	9561	20	1893	36	3560	38	4963	18	20
50	4790	46	9476	55	9580	19	1857	36	3521	39	4946	17	10
47 0	0.354835	45	0.379532	56	1.069600	20	2.81821	36	2.63483	38	0.934929	17	**13** 0
10	4880	45	9587	55	9620	20	1785	36	3444	39	4912	17	50
20	4926	46	9642	55	9639	19	1749	36	3406	38	4895	17	40
30	4971	45	9698	56	9659	20	1713	36	3367	39	4877	18	30
40	5016	45	9753	55	9679	20	1677	36	3329	38	4860	17	20
50	5062	46	9809	56	9698	19	1641	36	3290	39	4843	17	10
48 0	0.355107	45	0.379864	55	1.069718	20	2.81605	36	2.63252	38	0.934826	17	**12** 0
10	5152	45	9920	56	9738	20	1569	36	3213	39	4808	18	50
20	5198	46	0.379975	55	9758	20	1533	36	3175	38	4791	17	40
30	5243	45	0.380031	56	9777	19	1498	35	3137	38	4774	17	30
40	5288	45	0086	55	9797	20	1462	36	3098	39	4757	17	20
50	5334	46	0142	56	9817	20	1426	36	3060	38	4740	17	10
49 0	0.355379	45	0.380197	55	1.069836	19	2.81390	36	2.63021	39	0.934722	18	**11** 0
10	5424	45	0253	56	9856	20	1354	36	2983	38	4705	17	50
20	5470	46	0308	55	9876	20	1318	36	2945	38	4688	17	40
30	5515	45	0364	56	9896	20	1282	36	2906	39	4671	17	30
40	5560	45	0419	55	9915	19	1246	36	2868	38	4653	18	20
50	5605	45	0475	56	9935	20	1211	35	2830	38	4636	17	10
50 0	0.355651	46	0.380530	55	1.069955	20	2.81175	36	2.62791	39	0.934619	17	**10** 0
	cos		cotg		cosec		sec		tang		sin		

17

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8	13.6
9	15.3

19

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5	9.5
6	11.4
7	13.3
8	15.2
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5	17.5
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7	24.5
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9	31.5

37

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7	25.9
8	29.6
9	33.3

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7	27.3
8	31.2
9	35.1

45

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2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

55

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5	27.5
6	33.0
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8	44.0
9	49.5

69°

20°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.355651		0.380530		1.069955		2.81175		2.62791		0.934619		**10′** 0″
10	5696	45	0586	56	9975	20	1139	36	2753	38	4602	17	50
20	5741	45	0641	55	1.069994	19	1103	36	2715	38	4584	18	40
30	5787	46	0697	56	1.070014	20	1067	36	2676	39	4567	17	30
40	5832	45	0752	55	0034	20	1031	36	2638	38	4550	17	20
50	5877	45	0808	56	0054	20	0996	35	2600	38	4533	17	10
51 0	0.355923	46	0.380863	55	1.070073	19	2.80960	36	2.62561	39	0.934515	18	**9** 0
10	5968	45	0919	56	0093	20	0924	36	2523	38	4498	17	50
20	6013	45	0974	55	0113	20	0888	36	2485	38	4481	17	40
30	6059	46	1030	56	0133	20	0853	35	2447	38	4464	17	30
40	6104	45	1085	55	0152	19	0817	36	2408	39	4446	18	20
50	6149	45	1141	56	0172	20	0781	36	2370	38	4429	17	10
52 0	0.356194	45	0.381196	55	1.070192	20	2.80746	35	2.62332	38	0.934412	17	**8** 0
10	6240	46	1252	56	0212	20	0710	36	2294	38	4395	17	50
20	6285	45	1307	55	0231	19	0674	36	2256	38	4377	18	40
30	6330	45	1363	56	0251	20	0638	36	2217	39	4360	17	30
40	6376	46	1419	56	0271	20	0603	35	2179	38	4343	17	20
50	6421	45	1474	55	0291	20	0567	36	2141	38	4325	18	10
53 0	0.356466	45	0.381530	56	1.070311	20	2.80531	36	2.62103	38	0.934308	17	**7** 0
10	6512	46	1585	55	0330	19	0496	35	2065	38	4291	17	50
20	6557	45	1641	56	0350	20	0460	36	2027	38	4274	17	40
30	6602	45	1696	55	0370	20	0425	35	1988	39	4256	18	30
40	6647	45	1752	56	0390	20	0389	36	1950	38	4239	17	20
50	6693	46	1807	55	0410	20	0353	36	1912	38	4222	17	10
54 0	0.356738	45	0.381863	56	1.070429	19	2.80318	35	2.61874	38	0.934204	18	**6** 0
10	6783	45	1918	55	0449	20	0282	36	1836	38	4187	17	50
20	6829	46	1974	56	0469	20	0247	35	1798	38	4170	17	40
30	6874	45	2030	56	0489	20	0211	36	1760	38	4153	17	30
40	6919	45	2085	55	0509	20	0175	36	1722	38	4135	18	20
50	6964	45	2141	56	0529	20	0140	35	1684	38	4118	17	10
55 0	0.357010	46	0.382196	55	1.070548	19	2.80104	36	2.61646	38	0.934101	17	**5** 0
10	7055	45	2252	56	0568	20	0069	35	1608	38	4083	18	50
20	7100	45	2307	55	0588	20	2.80033	36	1570	38	4066	17	40
30	7146	46	2363	56	0608	20	2.79998	35	1532	38	4049	17	30
40	7191	45	2418	55	0628	20	9962	36	1494	38	4031	18	20
50	7236	45	2474	56	0648	20	9927	35	1456	38	4014	17	10
56 0	0.357281	45	0.382530	56	1.070668	20	2.79891	36	2.61418	38	0.933997	17	**4** 0
10	7327	46	2585	55	0687	19	9856	35	1380	38	3979	18	50
20	7372	45	2641	56	0707	20	9820	36	1342	38	3962	17	40
30	7417	45	2696	55	0727	20	9785	35	1304	38	3945	17	30
40	7463	46	2752	56	0747	20	9750	35	1266	38	3927	18	20
50	7508	45	2808	56	0767	20	9714	36	1228	38	3910	17	10
57 0	0.357553	45	0.382863	55	1.070787	20	2.79679	35	2.61190	38	0.933893	17	**3** 0
10	7598	45	2919	56	0807	20	9643	36	1152	38	3875	18	50
20	7644	46	2974	55	0826	19	9608	35	1114	38	3858	17	40
30	7689	45	3030	56	0846	20	9573	35	1076	38	3841	17	30
40	7734	45	3085	55	0866	20	9537	36	1038	38	3823	18	20
50	7779	45	3141	56	0886	20	9502	35	1000	38	3806	17	10
58 0	0.357825	46	0.383197	56	1.070906	20	2.79466	36	2.60963	37	0.933789	17	**2** 0
10	7870	45	3252	55	0926	20	9431	35	0925	38	3771	18	50
20	7915	45	3308	56	0946	20	9396	35	0887	38	3754	17	40
30	7961	46	3363	55	0966	20	9360	36	0849	38	3737	17	30
40	8006	45	3419	56	0986	20	9325	35	0811	38	3719	18	20
50	8051	45	3475	56	1006	20	9290	35	0773	38	3702	17	10
59 0	0.358096	45	0.383530	55	1.071025	19	2.79254	36	2.60736	37	0.933685	17	**1** 0
10	8142	46	3586	56	1045	20	9219	35	0698	38	3667	18	50
20	8187	45	3642	56	1065	20	9184	35	0660	38	3650	17	40
30	8232	45	3697	55	1085	20	9149	35	0622	38	3633	17	30
40	8277	45	3753	56	1105	20	9113	36	0584	38	3615	18	20
50	8323	46	3808	55	1125	20	9078	35	0547	37	3598	17	10
60 0	0.358368	45	0.383864	56	1.071145	20	2.79043	35	2.60509	38	0.933580	18	**0** 0
	cos		cotg		cosec		sec		tang		sin		

18	
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3	5.4
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8	14.4
9	16.2

20	
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4	8.0
5	10.0
6	12.0
7	14.0
8	16.0
9	18.0

36	
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2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

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8	30.4
9	34.2

39	
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6	23.4
7	27.3
8	31.2
9	35.1

46	
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2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

56	
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2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

69°

21°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.358368		0.383864		1.071145		2.79043		2.60509		0.933580		**60′** 0″
10	8413	45	3920	56	1165	20	9008	35	0471	38	3563	17	50
20	8458	45	3975	55	1185	20	8972	36	0433	38	3546	17	40
30	8504	46	4031	56	1205	20	8937	35	0396	37	3528	18	30
40	8549	45	4087	56	1225	20	8902	35	0358	38	3511	17	20
50	8594	45	4142	55	1245	20	8867	35	0320	38	3494	17	10
1 0	0.358640	46	0.384198	56	1.071265	20	2.78832	35	2.60283	37	0.933476	18	**59** 0
10	8685	45	4253	55	1285	20	8796	36	0245	38	3459	17	50
20	8730	45	4309	56	1305	20	8761	35	0207	38	3441	18	40
30	8775	45	4365	56	1325	20	8726	35	0170	37	3424	17	30
40	8821	46	4420	55	1344	19	8691	35	0132	38	3407	17	20
50	8866	45	4476	56	1364	20	8656	35	0094	38	3389	18	10
2 0	0.358911	45	0.384532	56	1.071384	20	2.78621	35	2.60057	37	0.933372	17	**58** 0
10	8956	45	4587	55	1404	20	8585	36	2.60019	38	3354	18	50
20	9002	46	4643	56	1424	20	8550	35	2.59981	38	3337	17	40
30	9047	45	4699	56	1444	20	8515	35	9944	37	3320	17	30
40	9092	45	4754	55	1464	20	8480	35	9906	38	3302	18	20
50	9137	45	4810	56	1484	20	8445	35	9869	37	3285	17	10
3 0	0.359183	46	0.384866	56	1.071504	20	2.78410	35	2.59831	38	0.933267	18	**57** 0
10	9228	45	4921	55	1524	20	8375	35	9793	38	3250	17	50
20	9273	45	4977	56	1544	20	8340	35	9756	37	3233	17	40
30	9318	45	5033	56	1564	20	8305	35	9718	38	3215	18	30
40	9363	45	5088	55	1584	20	8270	35	9681	37	3198	17	20
50	9409	46	5144	56	1604	20	8235	35	9643	38	3180	18	10
4 0	0.359454	45	0.385200	56	1.071624	20	2.78200	35	2.59606	37	0.933163	17	**56** 0
10	9499	45	5255	55	1644	20	8165	35	9568	38	3145	18	50
20	9544	45	5311	56	1664	20	8130	35	9531	37	3128	17	40
30	9590	46	5367	56	1684	20	8095	35	9493	38	3111	17	30
40	9635	45	5422	55	1704	20	8060	35	9456	37	3093	18	20
50	9680	45	5478	56	1724	20	8025	35	9418	38	3076	17	10
5 0	0.359725	45	0.385534	56	1.071744	20	2.77990	35	2.59381	37	0.933058	18	**55** 0
10	9771	46	5589	55	1765	21	7955	35	9343	38	3041	17	50
20	9816	45	5645	56	1785	20	7920	35	9306	37	3023	18	40
30	9861	45	5701	56	1805	20	7885	35	9268	38	3006	17	30
40	9906	45	5756	55	1825	20	7850	35	9231	37	2988	18	20
50	9952	46	5812	56	1845	20	7815	35	9193	38	2971	17	10
6 0	0.359997	45	0.385868	56	1.071865	20	2.77780	35	2.59156	37	0.932954	17	**54** 0
10	0.360042	45	5924	56	1885	20	7745	35	9119	37	2936	18	50
20	0087	45	5979	55	1905	20	7710	35	9081	38	2919	17	40
30	0132	45	6035	56	1925	20	7676	34	9044	37	2901	18	30
40	0178	46	6091	56	1945	20	7641	35	9006	38	2884	17	20
50	0223	45	6146	55	1965	20	7606	35	8969	37	2866	18	10
7 0	0.360268	45	0.386202	56	1.071985	20	2.77571	35	2.58932	37	0.932849	17	**53** 0
10	0313	45	6258	56	2005	20	7536	35	8894	38	2831	18	50
20	0359	46	6314	56	2025	20	7501	35	8857	37	2814	17	40
30	0404	45	6369	55	2045	20	7467	34	8820	37	2796	18	30
40	0449	45	6425	56	2065	20	7432	35	8782	38	2779	17	20
50	0494	45	6481	56	2086	21	7397	35	8745	37	2761	18	10
8 0	0.360540	46	0.386536	55	1.072106	20	2.77362	35	2.58708	37	0.932744	17	**52** 0
10	0585	45	6592	56	2126	20	7327	35	8671	37	2726	18	50
20	0630	45	6648	56	2146	20	7293	34	8633	38	2709	17	40
30	0675	45	6704	56	2166	20	7258	35	8596	37	2691	18	30
40	0720	45	6759	55	2186	20	7223	35	8559	37	2674	17	20
50	0766	46	6815	56	2206	20	7188	35	8521	38	2657	17	10
9 0	0.360811	45	0.386871	56	1.072226	20	2.77154	34	2.58484	37	0.932639	18	**51** 0
10	0856	45	6927	56	2246	20	7119	35	8447	37	2622	17	50
20	0901	45	6982	55	2266	20	7084	35	8410	37	2604	18	40
30	0946	45	7038	56	2287	21	7049	35	8373	37	2587	17	30
40	0992	46	7094	56	2307	20	7015	34	8335	38	2569	18	20
50	1037	45	7150	56	2327	20	6980	35	8298	37	2552	17	10
10 0	0.361082	45	0.387205	55	1.072347	20	2.76945	35	2.58261	37	0.932534	18	**50** 0
	cos		cotg		cosec		sec		tang		sin		

17	
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8	13.6
9	15.3

19	
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2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

21	
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2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

35	
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3	10.5
4	14.0
5	17.5
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7	24.5
8	28.0
9	31.5

37	
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8	29.6
9	33.3

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

68°

21°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.361082		0.387205		1.072347		2.76945		2.58261		0.932534		**50′** 0″
10	1127	45	7261	56	2367	20	6911	34	8224	37	2517	17	50
20	1173	46	7317	56	2387	20	6876	35	8187	37	2499	18	40
30	1218	45	7373	56	2407	20	6841	35	8149	38	2482	17	30
40	1263	45	7428	55	2427	20	6807	34	8112	37	2464	18	20
50	1308	45	7484	56	2448	21	6772	35	8075	37	2446	18	10
11 0	0.361353	45	0.387540	56	1.072468	20	2.76737	35	2.58038	37	0.932429	17	**49** 0
10	1399	46	7596	56	2488	20	6703	34	8001	37	2411	18	50
20	1444	45	7651	55	2508	20	6668	35	7964	37	2394	17	40
30	1489	45	7707	56	2528	20	6634	34	7927	37	2376	18	30
40	1534	45	7763	56	2548	20	6599	35	7890	37	2359	17	20
50	1579	45	7819	56	2569	21	6564	35	7852	38	2341	18	10
12 0	0.361625	46	0.387874	55	1.072589	20	2.76530	34	2.57815	37	0.932324	17	**48** 0
10	1670	45	7930	56	2609	20	6495	35	7778	37	2306	18	50
20	1715	45	7986	56	2629	20	6461	34	7741	37	2289	17	40
30	1760	45	8042	56	2649	20	6426	35	7704	37	2271	18	30
40	1805	45	8098	56	2669	20	6392	34	7667	37	2254	17	20
50	1851	46	8153	55	2690	21	6357	35	7630	37	2236	18	10
13 0	0.361896	45	0.388209	56	1.072710	20	2.76323	34	2.57593	37	0.932219	17	**47** 0
10	1941	45	8265	56	2730	20	6288	35	7556	37	2201	18	50
20	1986	45	8321	56	2750	20	6254	34	7519	37	2183	18	40
30	2031	45	8376	55	2770	20	6219	35	7482	37	2166	17	30
40	2077	46	8432	56	2791	21	6185	34	7445	37	2148	18	20
50	2122	45	8488	56	2811	20	6150	35	7408	37	2131	17	10
14 0	0.362167	45	0.388544	56	1.072831	20	2.76116	34	2.57371	37	0.932113	18	**46** 0
10	2212	45	8600	56	2851	20	6081	35	7334	37	2096	17	50
20	2257	45	8655	55	2871	20	6047	34	7297	37	2078	18	40
30	2302	45	8711	56	2892	21	6012	35	7260	37	2061	17	30
40	2348	46	8767	56	2912	20	5978	34	7223	37	2043	18	20
50	2393	45	8823	56	2932	20	5944	34	7186	37	2025	18	10
15 0	0.362438	45	0.388879	56	1.072952	20	2.75909	35	2.57150	36	0.932008	17	**45** 0
10	2483	45	8935	56	2973	21	5875	34	7113	37	1990	18	50
20	2528	45	8990	55	2993	20	5840	35	7076	37	1973	17	40
30	2574	46	9046	56	3013	20	5806	34	7039	37	1955	18	30
40	2619	45	9102	56	3033	20	5772	34	7002	37	1938	17	20
50	2664	45	9158	56	3053	20	5737	35	6965	37	1920	18	10
16 0	0.362709	45	0.389214	56	1.073074	21	2.75703	34	2.56928	37	0.931902	18	**44** 0
10	2754	45	9269	55	3094	20	5669	34	6891	37	1885	17	50
20	2799	45	9325	56	3114	20	5634	35	6855	36	1867	18	40
30	2845	46	9381	56	3135	21	5600	34	6818	37	1850	17	30
40	2890	45	9437	56	3155	20	5566	34	6781	37	1832	18	20
50	2935	45	9493	56	3175	20	5531	35	6744	37	1814	18	10
17 0	0.362980	45	0.389549	56	1.073195	20	2.75497	34	2.56707	37	0.931797	17	**43** 0
10	3025	45	9604	55	3216	21	5463	34	6671	36	1779	18	50
20	3071	46	9660	56	3236	20	5429	34	6634	37	1762	17	40
30	3116	45	9716	56	3256	20	5394	35	6597	37	1744	18	30
40	3161	45	9772	56	3276	20	5360	34	6560	37	1726	18	20
50	3206	45	9828	56	3297	21	5326	34	6523	37	1709	17	10
18 0	0.363251	45	0.389884	56	1.073317	20	2.75292	34	2.56487	36	0.931691	18	**42** 0
10	3296	45	9940	56	3337	20	5257	35	6450	37	1674	17	50
20	3342	46	0.389995	55	3358	21	5223	34	6413	37	1656	18	40
30	3387	45	0.390051	56	3378	20	5189	34	6377	36	1638	18	30
40	3432	45	0107	56	3398	20	5155	34	6340	37	1621	17	20
50	3477	45	0163	56	3418	20	5121	34	6303	37	1603	18	10
19 0	0.363522	45	0.390219	56	1.073439	21	2.75086	35	2.56266	37	0.931586	17	**41** 0
10	3567	45	0275	56	3459	20	5052	34	6230	36	1568	18	50
20	3613	46	0331	56	3479	20	5018	34	6193	37	1550	18	40
30	3658	45	0386	55	3500	21	4984	34	6156	37	1533	17	30
40	3703	45	0442	56	3520	20	4950	34	6120	36	1515	18	20
50	3748	45	0498	56	3540	20	4916	34	6083	37	1497	18	10
20 0	0.363793	45	0.390554	56	1.073561	21	2.74881	35	2.56046	37	0.931480	17	**40** 0
	cos		cotg		cosec		sec		tang		sin		

18	
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9	16.2

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8	16.0
9	18.0

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5	17.0
6	20.4
7	23.8
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9	30.6

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3	10.8
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6	21.6
7	25.2
8	28.8
9	32.4

38	
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2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

46	
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2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

56	
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2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

21°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.363793		0.390554		1.073561		2.74881		2.56046		0.931480		**40′** 0″
10	3838	45	0610	56	3581	20	4847	34	6010	36	1462	18	50
20	3884	46	0666	56	3601	20	4813	34	5973	37	1444	18	40
30	3929	45	0722	56	3622	21	4779	34	5937	36	1427	17	30
40	3974	45	0778	56	3642	20	4745	34	5900	37	1409	18	20
50	4019	45	0833	55	3662	20	4711	34	5863	37	1392	17	10
21 0	0.364064	45	0.390889	56	1.073683	21	2.74677	34	2.55827	36	0.931374	18	**39** 0
10	4109	45	0945	56	3703	20	4643	34	5790	37	1356	18	50
20	4154	45	1001	56	3723	20	4609	34	5754	36	1339	17	40
30	4200	46	1057	56	3744	21	4575	34	5717	37	1321	18	30
40	4245	45	1113	56	3764	20	4541	34	5681	36	1303	18	20
50	4290	45	1169	56	3784	20	4507	34	5644	37	1286	17	10
22 0	0.364335	45	0.391225	56	1.073805	21	2.74473	34	2.55608	36	0.931268	18	**38** 0
10	4380	45	1281	56	3825	20	4439	34	5571	37	1250	18	50
20	4425	45	1337	56	3846	21	4405	34	5535	36	1233	17	40
30	4470	45	1392	55	3866	20	4371	34	5498	37	1215	18	30
40	4516	46	1448	56	3886	20	4337	34	5462	36	1197	18	20
50	4561	45	1504	56	3907	21	4303	34	5425	37	1180	17	10
23 0	0.364606	45	0.391560	56	1.073927	20	2.74269	34	2.55389	36	0.931162	18	**37** 0
10	4651	45	1616	56	3947	20	4235	34	5352	37	1144	18	50
20	4696	45	1672	56	3968	21	4201	34	5316	36	1127	17	40
30	4741	45	1728	56	3988	20	4167	34	5279	37	1109	18	30
40	4787	46	1784	56	4009	21	4133	34	5243	36	1091	18	20
50	4832	45	1840	56	4029	20	4099	34	5206	37	1074	17	10
24 0	0.364877	45	0.391896	56	1.074049	20	2.74065	34	2.55170	36	0.931056	18	**36** 0
10	4922	45	1952	56	4070	21	4031	34	5134	36	1038	18	50
20	4967	45	2008	56	4090	20	3997	34	5097	37	1020	18	40
30	5012	45	2064	56	4111	21	3963	34	5061	36	1003	17	30
40	5057	45	2119	55	4131	20	3930	33	5024	37	0985	18	20
50	5102	45	2175	56	4152	21	3896	34	4988	36	0967	18	10
25 0	0.365148	46	0.392231	56	1.074172	20	2.73862	34	2.54952	36	0.930950	17	**35** 0
10	5193	45	2287	56	4192	20	3828	34	4915	37	0932	18	50
20	5238	45	2343	56	4213	21	3794	34	4879	36	0914	18	40
30	5283	45	2399	56	4233	20	3760	34	4843	36	0897	17	30
40	5328	45	2455	56	4254	21	3727	33	4806	37	0879	18	20
50	5373	45	2511	56	4274	20	3693	34	4770	36	0861	18	10
26 0	0.365418	45	0.392567	56	1.074295	21	2.73659	34	2.54734	36	0.930843	18	**34** 0
10	5464	46	2623	56	4315	20	3625	34	4697	37	0826	17	50
20	5509	45	2679	56	4335	20	3591	34	4661	36	0808	18	40
30	5554	45	2735	56	4356	21	3558	33	4625	36	0790	18	30
40	5599	45	2791	56	4376	20	3524	34	4588	37	0773	17	20
50	5644	45	2847	56	4397	21	3490	34	4552	36	0755	18	10
27 0	0.365689	45	0.392903	56	1.074417	20	2.73456	34	2.54516	36	0.930737	18	**33** 0
10	5734	45	2959	56	4438	21	3423	33	4480	36	0719	18	50
20	5779	45	3015	56	4458	20	3389	34	4443	37	0702	17	40
30	5825	46	3071	56	4479	21	3355	34	4407	36	0684	18	30
40	5870	45	3127	56	4499	20	3321	34	4371	36	0666	18	20
50	5915	45	3183	56	4520	21	3288	33	4335	36	0648	18	10
28 0	0.365960	45	0.393239	56	1.074540	20	2.73254	34	2.54299	36	0.930631	17	**32** 0
10	6005	45	3295	56	4561	21	3220	34	4262	37	0613	18	50
20	6050	45	3351	56	4581	20	3187	33	4226	36	0595	18	40
30	6095	45	3407	56	4602	21	3153	34	4190	36	0577	18	30
40	6140	45	3463	56	4622	20	3119	34	4154	36	0560	17	20
50	6185	45	3518	55	4643	21	3086	33	4118	36	0542	18	10
29 0	0.366231	46	0.393574	56	1.074663	20	2.73052	34	2.54082	36	0.930524	18	**31** 0
10	6276	45	3630	56	4684	21	3018	34	4045	37	0506	18	50
20	6321	45	3686	56	4704	20	2985	33	4009	36	0489	17	40
30	6366	45	3742	56	4725	21	2951	34	3973	36	0471	18	30
40	6411	45	3798	56	4745	20	2918	33	3937	36	0453	18	20
50	6456	45	3854	56	4766	21	2884	34	3901	36	0435	18	10
30 0	0.366501	45	0.393910	56	1.074786	20	2.72850	34	2.53865	36	0.930418	17	**30** 0
	cos		cotg		cosec		sec		tang		sin		

17	
1	1.7
2	3.4
3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

20	
1	2.0
2	4.0
3	6.0
4	8.0
5	10.0
6	12.0
7	14.0
8	16.0
9	18.0

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

35	
1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

37	
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2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

56	
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2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

68°

21°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.366501		0.393910		1.074786		2.72850		2.53865		0.930418		**30′** 0″
10	6546	45	3966	56	4807	21	2817	33	3829	36	0400	18	50
20	6591	45	4022	56	4827	20	2783	34	3793	36	0382	18	40
30	6637	46	4078	56	4848	21	2750	33	3757	36	0364	18	30
40	6682	45	4135	57	4868	20	2716	34	3720	37	0346	18	20
50	6727	45	4191	56	4889	21	2683	33	3684	36	0329	17	10
31 0	0.366772	45	0.394247	56	1.074909	20	2.72649	34	2.53648	36	0.930311	18	**29** 0
10	6817	45	4303	56	4930	21	2616	33	3612	36	0293	18	50
20	6862	45	4359	56	4951	21	2582	34	3576	36	0275	18	40
30	6907	45	4415	56	4971	20	2549	33	3540	36	0258	17	30
40	6952	45	4471	56	4992	21	2515	34	3504	36	0240	18	20
50	6997	45	4527	56	5012	20	2482	33	3468	36	0222	18	10
32 0	0.367042	45	0.394583	56	1.075033	21	2.72448	34	2.53432	36	0.930204	18	**28** 0
10	7088	46	4639	56	5053	20	2415	33	3396	36	0186	18	50
20	7133	45	4695	56	5074	21	2381	34	3360	36	0169	17	40
30	7178	45	4751	56	5094	20	2348	33	3324	36	0151	18	30
40	7223	45	4807	56	5115	21	2314	34	3288	36	0133	18	20
50	7268	45	4863	56	5136	21	2281	33	3252	36	0115	18	10
33 0	0.367313	45	0.394919	56	1.075156	20	2.72247	34	2.53217	35	0.930097	18	**27** 0
10	7358	45	4975	56	5177	21	2214	33	3181	36	0080	17	50
20	7403	45	5031	56	5197	20	2181	33	3145	36	0062	18	40
30	7448	45	5087	56	5218	21	2147	34	3109	36	0044	18	30
40	7493	45	5143	56	5239	21	2114	33	3073	36	0026	18	20
50	7538	45	5199	56	5259	20	2080	34	3037	36	0.930008	18	10
34 0	0.367584	46	0.395255	56	1.075280	21	2.72047	33	2.53001	36	0.929990	18	**26** 0
10	7629	45	5311	56	5300	20	2014	33	2965	36	9973	17	50
20	7674	45	5367	56	5321	21	1980	34	2929	36	9955	18	40
30	7719	45	5423	56	5342	21	1947	33	2894	35	9937	18	30
40	7764	45	5479	56	5362	20	1914	33	2858	36	9919	18	20
50	7809	45	5535	56	5383	21	1880	34	2822	36	9901	18	10
35 0	0.367854	45	0.395592	57	1.075403	20	2.71847	33	2.52786	36	0.929884	17	**25** 0
10	7899	45	5648	56	5424	21	1814	33	2750	36	9866	18	50
20	7944	45	5704	56	5445	21	1780	34	2714	36	9848	18	40
30	7989	45	5760	56	5465	20	1747	33	2679	35	9830	18	30
40	8034	45	5816	56	5486	21	1714	33	2643	36	9812	18	20
50	8079	45	5872	56	5507	21	1680	34	2607	36	9794	18	10
36 0	0.368125	46	0.395928	56	1.075527	20	2.71647	33	2.52571	36	0.929776	18	**24** 0
10	8170	45	5984	56	5548	21	1614	33	2535	36	9759	17	50
20	8215	45	6040	56	5569	21	1581	33	2500	35	9741	18	40
30	8260	45	6096	56	5589	20	1547	34	2464	36	9723	18	30
40	8305	45	6152	56	5610	21	1514	33	2428	36	9705	18	20
50	8350	45	6208	56	5631	21	1481	33	2392	36	9687	18	10
37 0	0.368395	45	0.396265	57	1.075651	20	2.71448	33	2.52357	35	0.929669	18	**23** 0
10	8440	45	6321	56	5672	21	1415	33	2321	36	9652	17	50
20	8485	45	6377	56	5693	21	1381	34	2285	36	9634	18	40
30	8530	45	6433	56	5713	20	1348	33	2250	35	9616	18	30
40	8575	45	6489	56	5734	21	1315	33	2214	36	9598	18	20
50	8620	45	6545	56	5755	21	1282	33	2178	36	9580	18	10
38 0	0.368665	45	0.396601	56	1.075775	20	2.71249	33	2.52142	36	0.929562	18	**22** 0
10	8710	45	6657	56	5796	21	1216	33	2107	35	9544	18	50
20	8756	46	6713	56	5817	21	1182	34	2071	36	9526	18	40
30	8801	45	6769	56	5837	20	1149	33	2036	35	9509	17	30
40	8846	45	6826	57	5858	21	1116	33	2000	36	9491	18	20
50	8891	45	6882	56	5879	21	1083	33	1964	36	9473	18	10
39 0	0.368936	45	0.396938	56	1.075899	20	2.71050	33	2.51929	35	0.929455	18	**21** 0
10	8981	45	6994	56	5920	21	1017	33	1893	36	9437	18	50
20	9026	45	7050	56	5941	21	0984	33	1857	36	9419	18	40
30	9071	45	7106	56	5962	21	0951	33	1822	35	9401	18	30
40	9116	45	7162	56	5982	20	0918	33	1786	36	9383	18	20
50	9161	45	7218	56	6003	21	0884	34	1751	35	9365	18	10
40 0	0.369206	45	0.397275	57	1.076024	21	2.70851	33	2.51715	36	0.929348	17	**20** 0
	cos		cotg		cosec		sec		tang		sin		

18	
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2	3.6
3	5.4
4	7.2
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6	10.8
7	12.6
8	14.4
9	16.2

21	
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2	4.2
3	6.3
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5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

36	
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2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

45	
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2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

55	
1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

68°

21°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.369206		0.397275		1.076024		2.70851		2.51715		0.929348		**20′** 0″
10	9251	45	7331	56	6044	20	0818	33	1680	35	9330	18	50
20	9296	45	7387	56	6065	21	0785	33	1644	36	9312	18	40
30	9341	45	7443	56	6086	21	0752	33	1608	36	9294	18	30
40	9386	45	7499	56	6107	21	0719	33	1573	35	9276	18	20
50	9431	45	7555	56	6127	20	0686	33	1537	36	9258	18	10
41 0	0.369476	45	0.397611	56	1.076148	21	2.70653	33	2.51502	35	0.929240	18	**19** 0
10	9522	46	7668	57	6169	21	0620	33	1466	36	9222	18	50
20	9567	45	7724	56	6190	21	0587	33	1431	35	9204	18	40
30	9612	45	7780	56	6210	20	0554	33	1395	36	9186	18	30
40	9657	45	7836	56	6231	21	0521	33	1360	35	9168	18	20
50	9702	45	7892	56	6252	21	0488	33	1324	36	9150	18	10
42 0	0.369747	45	0.397948	56	1.076273	21	2.70455	33	2.51289	35	0.929133	17	**18** 0
10	9792	45	8004	56	6293	20	0422	33	1253	36	9115	18	50
20	9837	45	8061	57	6314	21	0389	33	1218	35	9097	18	40
30	9882	45	8117	56	6335	21	0357	32	1183	35	9079	18	30
40	9927	45	8173	56	6356	21	0324	33	1147	36	9061	18	20
50	0.369972	45	8229	56	6377	21	0291	33	1112	35	9043	18	10
43 0	0.370017	45	0.398285	56	1.076397	20	2.70258	33	2.51076	36	0.929025	18	**17** 0
10	0062	45	8341	56	6418	21	0225	33	1041	35	9007	18	50
20	0107	45	8398	57	6439	21	0192	33	1005	36	8989	18	40
30	0152	45	8454	56	6460	21	0159	33	0970	35	8971	18	30
40	0197	45	8510	56	6480	20	0126	33	0935	35	8953	18	20
50	0242	45	8566	56	6501	21	0093	33	0899	36	8935	18	10
44 0	0.370287	45	0.398622	56	1.076522	21	2.70061	32	2.50864	35	0.928917	18	**16** 0
10	0332	45	8679	57	6543	21	2.70028	33	0829	35	8899	18	50
20	0377	45	8735	56	6564	21	2.69995	33	0793	36	8881	18	40
30	0422	45	8791	56	6585	21	9962	33	0758	35	8863	18	30
40	0467	45	8847	56	6605	20	9929	33	0723	35	8845	18	20
50	0512	45	8903	56	6626	21	9896	33	0687	36	8828	17	10
45 0	0.370557	45	0.398960	57	1.076647	21	2.69864	32	2.50652	35	0.928810	18	**15** 0
10	0602	45	9016	56	6668	21	9831	33	0617	35	8792	18	50
20	0647	45	9072	56	6689	21	9798	33	0581	36	8774	18	40
30	0693	46	9128	56	6709	20	9765	33	0546	35	8756	18	30
40	0738	45	9184	56	6730	21	9733	32	0511	35	8738	18	20
50	0783	45	9241	57	6751	21	9700	33	0476	35	8720	18	10
46 0	0.370828	45	0.399297	56	1.076772	21	2.69667	33	2.50440	36	0.928702	18	**14** 0
10	0873	45	9353	56	6793	21	9634	33	0405	35	8684	18	50
20	0918	45	9409	56	6814	21	9602	32	0370	35	8666	18	40
30	0963	45	9465	56	6835	21	9569	33	0335	35	8648	18	30
40	1008	45	9522	57	6855	20	9536	33	0299	36	8630	18	20
50	1053	45	9578	56	6876	21	9503	33	0264	35	8612	18	10
47 0	0.371098	45	0.399634	56	1.076897	21	2.69471	32	2.50229	35	0.928594	18	**13** 0
10	1143	45	9690	56	6918	21	9438	33	0194	35	8576	18	50
20	1188	45	9747	57	6939	21	9405	33	0159	35	8558	18	40
30	1233	45	9803	56	6960	21	9373	32	0123	36	8540	18	30
40	1278	45	9859	56	6981	21	9340	33	0088	35	8522	18	20
50	1323	45	9915	56	7001	20	9307	33	0053	35	8504	18	10
48 0	0.371368	45	0.399971	56	1.077022	21	2.69275	32	2.50018	35	0.928486	18	**12** 0
10	1413	45	0.400028	57	7043	21	9242	33	2.49983	35	8468	18	50
20	1458	45	0084	56	7064	21	9210	32	9948	35	8450	18	40
30	1503	45	0140	56	7085	21	9177	33	9912	36	8432	18	30
40	1548	45	0196	56	7106	21	9144	33	9877	35	8414	18	20
50	1593	45	0253	57	7127	21	9112	32	9842	35	8396	18	10
49 0	0.371638	45	0.400309	56	1.077148	21	2.69079	33	2.49807	35	0.928378	18	**11** 0
10	1683	45	0365	56	7169	21	9047	32	9772	35	8360	18	50
20	1728	45	0421	56	7190	21	9014	33	9737	35	8342	18	40
30	1773	45	0478	57	7210	20	8981	33	9702	35	8324	18	30
40	1818	45	0534	56	7231	21	8949	32	9667	35	8306	18	20
50	1863	45	0590	56	7252	21	8916	33	9632	35	8288	18	10
50 0	0.371908	45	0.400646	56	1.077273	21	2.68884	32	2.49597	35	0.928270	18	**10** 0
	cos		cotg		cosec		sec		tang		sin		

17

1	1.7
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3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

19

1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

21

1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

34

1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

36

1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

45

1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

56

1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

68°

21°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.371908		0.400646		1.077273		2.68884		2.49597		0.928270		**10′** 0″
10	1953	45	0703	57	7294	21	8851	33	9562	35	8252	18	50
20	1998	45	0759	56	7315	21	8819	32	9527	35	8234	18	40
30	2043	45	0815	56	7336	21	8786	33	9491	36	8216	18	30
40	2088	45	0872	57	7357	21	8754	32	9456	35	8197	19	20
50	2133	45	0928	56	7378	21	8721	33	9421	35	8179	18	10
51 0	0.372178	45	0.400984	56	1.077399	21	2.68689	32	2.49386	35	0.928161	18	**9** 0
10	2223	45	1040	56	7420	21	8656	33	9351	35	8143	18	50
20	2268	45	1097	57	7441	21	8624	32	9316	35	8125	18	40
30	2313	45	1153	56	7462	21	8591	33	9281	35	8107	18	30
40	2358	45	1209	56	7483	21	8559	32	9247	34	8089	18	20
50	2403	45	1265	56	7504	21	8526	33	9212	35	8071	18	10
52 0	0.372448	45	0.401322	57	1.077525	21	2.68494	32	2.49177	35	0.928053	18	**8** 0
10	2493	45	1378	56	7546	21	8461	33	9142	35	8035	18	50
20	2538	45	1434	56	7566	20	8429	32	9107	35	8017	18	40
30	2583	45	1491	57	7587	21	8397	32	9072	35	7999	18	30
40	2628	45	1547	56	7608	21	8364	33	9037	35	7981	18	20
50	2673	45	1603	56	7629	21	8332	32	9002	35	7963	18	10
53 0	0.372718	45	0.401660	57	1.077650	21	2.68299	33	2.48967	35	0.927945	18	**7** 0
10	2763	45	1716	56	7671	21	8267	32	8932	35	7927	18	50
20	2808	45	1772	56	7692	21	8235	32	8897	35	7909	18	40
30	2853	45	1828	56	7713	21	8202	33	8862	35	7890	19	30
40	2898	45	1885	57	7734	21	8170	32	8828	34	7872	18	20
50	2943	45	1941	56	7755	21	8138	32	8793	35	7854	18	10
54 0	0.372988	45	0.401997	56	1.077776	21	2.68105	33	2.48758	35	0.927836	18	**6** 0
10	3033	45	2054	57	7797	21	8073	32	8723	35	7818	18	50
20	3078	45	2110	56	7818	21	8041	32	8688	35	7800	18	40
30	3123	45	2166	56	7839	21	8008	33	8653	35	7782	18	30
40	3168	45	2223	57	7860	21	7976	32	8618	35	7764	18	20
50	3213	45	2279	56	7881	21	7944	32	8584	34	7746	18	10
55 0	0.373258	45	0.402335	56	1.077902	21	2.67911	33	2.48549	35	0.927728	18	**5** 0
10	3303	45	2392	57	7923	21	7879	32	8514	35	7710	18	50
20	3348	45	2448	56	7945	22	7847	32	8479	35	7692	18	40
30	3393	45	2504	56	7966	21	7815	32	8445	34	7673	19	30
40	3438	45	2561	57	7987	21	7782	33	8410	35	7655	18	20
50	3483	45	2617	56	8008	21	7750	32	8375	35	7637	18	10
56 0	0.373528	45	0.402673	56	1.078029	21	2.67718	32	2.48340	35	0.927619	18	**4** 0
10	3572	44	2730	57	8050	21	7686	32	8305	35	7601	18	50
20	3617	45	2786	56	8071	21	7653	33	8271	34	7583	18	40
30	3662	45	2842	56	8092	21	7621	32	8236	35	7565	18	30
40	3707	45	2899	57	8113	21	7589	32	8201	35	7547	18	20
50	3752	45	2955	56	8134	21	7557	32	8167	34	7529	18	10
57 0	0.373797	45	0.403011	56	1.078155	21	2.67525	32	2.48132	35	0.927510	19	**3** 0
10	3842	45	3068	57	8176	21	7492	33	8097	35	7492	18	50
20	3887	45	3124	56	8197	21	7460	32	8063	34	7474	18	40
30	3932	45	3181	57	8218	21	7428	32	8028	35	7456	18	30
40	3977	45	3237	56	8239	21	7396	32	7993	35	7438	18	20
50	4022	45	3293	56	8260	21	7364	32	7959	34	7420	18	10
58 0	0.374067	45	0.403350	57	1.078281	21	2.67332	32	2.47924	35	0.927402	18	**2** 0
10	4112	45	3406	56	8303	22	7300	32	7889	35	7383	19	50
20	4157	45	3462	56	8324	21	7267	33	7855	34	7365	18	40
30	4202	45	3519	57	8345	21	7235	32	7820	35	7347	18	30
40	4247	45	3575	56	8366	21	7203	32	7785	35	7329	18	20
50	4292	45	3632	57	8387	21	7171	32	7751	34	7311	18	10
59 0	0.374337	45	0.403688	56	1.078408	21	2.67139	32	2.47716	35	0.927293	18	**1** 0
10	4382	45	3744	56	8429	21	7107	32	7682	34	7275	18	50
20	4427	45	3801	57	8450	21	7075	32	7647	35	7256	19	40
30	4472	45	3857	56	8471	21	7043	32	7612	35	7238	18	30
40	4517	45	3913	56	8492	21	7011	32	7578	34	7220	18	20
50	4562	45	3970	57	8514	22	6979	32	7543	35	7202	18	10
60 0	0.374607	45	0.404026	56	1.078535	21	2.66947	32	2.47509	34	0.927184	18	**0** 0
	cos		cotg		cosec		sec		tang		sin		

18		20		22		33		35		44		46		57	
1	1.8	1	2.0	1	2.2	1	3.3	1	3.5	1	4.4	1	4.6	1	5.7
2	3.6	2	4.0	2	4.4	2	6.6	2	7.0	2	8.8	2	9.2	2	11.4
3	5.4	3	6.0	3	6.6	3	9.9	3	10.5	3	13.2	3	13.8	3	17.1
4	7.2	4	8.0	4	8.8	4	13.2	4	14.0	4	17.6	4	18.4	4	22.8
5	9.0	5	10.0	5	11.0	5	16.5	5	17.5	5	22.0	5	23.0	5	28.5
6	10.8	6	12.0	6	13.2	6	19.8	6	21.0	6	26.4	6	27.6	6	34.2
7	12.6	7	14.0	7	15.4	7	23.1	7	24.5	7	30.8	7	32.2	7	39.9
8	14.4	8	16.0	8	17.6	8	26.4	8	28.0	8	35.2	8	36.8	8	45.6
9	16.2	9	18.0	9	19.8	9	29.7	9	31.5	9	39.6	9	41.4	9	51.3

68°

22°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.374607		0.404026		1.078535		2.66947		2.47509		0.927184		**60′** 0″
10	4652	45	4083	57	8556	21	6915	32	7474	35	7166	18	50
20	4696	44	4139	56	8577	21	6883	32	7440	34	7148	18	40
30	4741	45	4195	56	8598	21	6851	32	7405	35	7129	19	30
40	4786	45	4252	57	8619	21	6819	32	7371	34	7111	18	20
50	4831	45	4308	56	8640	21	6787	32	7336	35	7093	18	10
1 0	0.374876	45	0.404365	57	1.078662	22	2.66755	32	2.47302	34	0.927075	18	**59** 0
10	4921	45	4421	56	8683	21	6723	32	7267	35	7057	18	50
20	4966	45	4477	56	8704	21	6691	32	7233	34	7038	19	40
30	5011	45	4534	57	8725	21	6659	32	7198	35	7020	18	30
40	5056	45	4590	56	8746	21	6627	32	7164	34	7002	18	20
50	5101	45	4647	57	8767	21	6595	32	7129	35	6984	18	10
2 0	0.375146	45	0.404703	56	1.078788	21	2.66563	32	2.47095	34	0.926966	18	**58** 0
10	5191	45	4760	57	8810	22	6531	32	7060	35	6948	18	50
20	5236	45	4816	56	8831	21	6499	32	7026	34	6929	19	40
30	5281	45	4872	56	8852	21	6467	32	6991	35	6911	18	30
40	5326	45	4929	57	8873	21	6435	32	6957	34	6893	18	20
50	5371	45	4985	56	8894	21	6403	32	6923	34	6875	18	10
3 0	0.375416	45	0.405042	57	1.078916	22	2.66371	32	2.46888	35	0.926857	18	**57** 0
10	5461	45	5098	56	8937	21	6340	31	6854	34	6838	19	50
20	5505	44	5155	57	8958	21	6308	32	6819	35	6820	18	40
30	5550	45	5211	56	8979	21	6276	32	6785	34	6802	18	30
40	5595	45	5267	56	9000	21	6244	32	6751	34	6784	18	20
50	5640	45	5324	57	9022	22	6212	32	6716	35	6766	18	10
4 0	0.375685	45	0.405380	56	1.079043	21	2.66180	32	2.46682	34	0.926747	19	**56** 0
10	5730	45	5437	57	9064	21	6148	32	6648	34	6729	18	50
20	5775	45	5493	56	9085	21	6117	31	6613	35	6711	18	40
30	5820	45	5550	57	9106	21	6085	32	6579	34	6693	18	30
40	5865	45	5606	56	9128	22	6053	32	6545	34	6674	19	20
50	5910	45	5663	57	9149	21	6021	32	6510	35	6656	18	10
5 0	0.375955	45	0.405719	56	1.079170	21	2.65989	32	2.46476	34	0.926638	18	**55** 0
10	6000	45	5776	57	9191	21	5958	31	6442	34	6620	18	50
20	6045	45	5832	56	9212	21	5926	32	6407	35	6602	18	40
30	6090	45	5888	56	9234	22	5894	32	6373	34	6583	19	30
40	6134	44	5945	57	9255	21	5862	32	6339	34	6565	18	20
50	6179	45	6001	56	9276	21	5831	31	6305	34	6547	18	10
6 0	0.376224	45	0.406058	57	1.079297	21	2.65799	32	2.46270	35	0.926529	18	**54** 0
10	6269	45	6114	56	9319	22	5767	32	6236	34	6510	19	50
20	6314	45	6171	57	9340	21	5735	32	6202	34	6492	18	40
30	6359	45	6227	56	9361	21	5704	31	6168	34	6474	18	30
40	6404	45	6284	57	9382	21	5672	32	6133	35	6456	18	20
50	6449	45	6340	56	9404	22	5640	32	6099	34	6437	19	10
7 0	0.376494	45	0.406397	57	1.079425	21	2.65609	31	2.46065	34	0.926419	18	**53** 0
10	6539	45	6453	56	9446	21	5577	32	6031	34	6401	18	50
20	6584	45	6510	57	9468	22	5545	32	5997	34	6383	18	40
30	6629	45	6566	56	9489	21	5514	31	5962	35	6364	19	30
40	6673	44	6623	57	9510	21	5482	32	5928	34	6346	18	20
50	6718	45	6679	56	9531	21	5450	32	5894	34	6328	18	10
8 0	0.376763	45	0.406736	57	1.079553	22	2.65419	31	2.45860	34	0.926310	18	**52** 0
10	6808	45	6792	56	9574	21	5387	32	5826	34	6291	19	50
20	6853	45	6849	57	9595	21	5355	32	5792	34	6273	18	40
30	6898	45	6905	56	9617	22	5324	31	5757	35	6255	18	30
40	6943	45	6962	57	9638	21	5292	32	5723	34	6237	18	20
50	6988	45	7018	56	9659	21	5261	31	5689	34	6218	19	10
9 0	0.377033	45	0.407075	57	1.079680	21	2.65229	32	2.45655	34	0.926200	18	**51** 0
10	7078	45	7131	56	9702	22	5197	32	5621	34	6182	18	50
20	7122	44	7188	57	9723	21	5166	31	5587	34	6163	19	40
30	7167	45	7244	56	9744	21	5134	32	5553	34	6145	18	30
40	7212	45	7301	57	9766	22	5103	31	5519	34	6127	18	20
50	7257	45	7357	56	9787	21	5071	32	5485	34	6109	18	10
10 0	0.377302	45	0.407414	57	1.079808	21	2.65040	31	2.45451	34	0.926090	19	**50** 0
	cos		cotg		cosec		sec		tang		sin		

18	
1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

21	
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

56	
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2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

67°

22°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.377302		0.407414		1.079808		2.65040		2.45451		0.926090		**50′** 0″
10	7347	45	7470	56	9830	22	5008	32	5417	34	6072	18	50
20	7392	45	7527	57	9851	21	4977	31	5383	34	6054	18	40
30	7437	45	7584	57	9872	21	4945	32	5348	35	6035	19	30
40	7482	45	7640	56	9894	22	4914	31	5314	34	6017	18	20
50	7527	45	7697	57	9915	21	4882	32	5280	34	5999	18	10
11 0	0.377571	44	0.407753	56	1.079936	21	2.64851	31	2.45246	34	0.925980	19	**49** 0
10	7616	45	7810	57	9958	22	4819	32	5212	34	5962	18	50
20	7661	45	7866	56	1.079979	21	4788	31	5178	34	5944	18	40
30	7706	45	7923	57	1.080000	21	4756	32	5144	34	5926	18	30
40	7751	45	7979	56	0022	22	4725	31	5110	34	5907	19	20
50	7796	45	8036	57	0043	21	4693	32	5076	34	5889	18	10
12 0	0.377841	45	0.408092	56	1.080065	22	2.64662	31	2.45043	33	0.925871	18	**48** 0
10	7886	45	8149	57	0086	21	4630	32	5009	34	5852	19	50
20	7931	45	8206	57	0107	21	4599	31	4975	34	5834	18	40
30	7975	44	8262	56	0129	22	4567	32	4941	34	5816	18	30
40	8020	45	8319	57	0150	21	4536	31	4907	34	5797	19	20
50	8065	45	8375	56	0171	21	4505	31	4873	34	5779	18	10
13 0	0.378110	45	0.408432	57	1.080193	22	2.64473	32	2.44839	34	0.925761	18	**47** 0
10	8155	45	8488	56	0214	21	4442	31	4805	34	5742	19	50
20	8200	45	8545	57	0236	22	4410	32	4771	34	5724	18	40
30	8245	45	8602	57	0257	21	4379	31	4737	34	5706	18	30
40	8290	45	8658	56	0278	21	4348	31	4703	34	5687	19	20
50	8334	44	8715	57	0300	22	4316	32	4669	34	5669	18	10
14 0	0.378379	45	0.408771	56	1.080321	21	2.64285	31	2.44636	33	0.925651	18	**46** 0
10	8424	45	8828	57	0343	22	4254	31	4602	34	5632	19	50
20	8469	45	8884	56	0364	21	4222	32	4568	34	5614	18	40
30	8514	45	8941	57	0385	21	4191	31	4534	34	5596	18	30
40	8559	45	8998	57	0407	22	4160	31	4500	34	5577	19	20
50	8604	45	9054	56	0428	21	4128	32	4466	34	5559	18	10
15 0	0.378649	45	0.409111	57	1.080450	22	2.64097	31	2.44433	33	0.925541	18	**45** 0
10	8693	44	9167	56	0471	21	4066	31	4399	34	5522	19	50
20	8738	45	9224	57	0493	22	4035	31	4365	34	5504	18	40
30	8783	45	9281	57	0514	21	4003	32	4331	34	5485	19	30
40	8828	45	9337	56	0535	21	3972	31	4297	34	5467	18	20
50	8873	45	9394	57	0557	22	3941	31	4264	33	5449	18	10
16 0	0.378918	45	0.409450	56	1.080578	21	2.63909	32	2.44230	34	0.925430	19	**44** 0
10	8963	45	9507	57	0600	22	3878	31	4196	34	5412	18	50
20	9008	45	9564	57	0621	21	3847	31	4162	34	5394	18	40
30	9052	44	9620	56	0643	22	3816	31	4129	33	5375	19	30
40	9097	45	9677	57	0664	21	3785	31	4095	34	5357	18	20
50	9142	45	9733	56	0686	22	3753	32	4061	34	5338	19	10
17 0	0.379187	45	0.409790	57	1.080707	21	2.63722	31	2.44027	34	0.925320	18	**43** 0
10	9232	45	9847	57	0729	22	3691	31	3994	33	5302	18	50
20	9277	45	9903	56	0750	21	3660	31	3960	34	5283	19	40
30	9322	45	0.409960	57	0772	22	3629	31	3926	34	5265	18	30
40	9366	44	0.410017	57	0793	21	3597	32	3893	33	5247	18	20
50	9411	45	0073	56	0815	22	3566	31	3859	34	5228	19	10
18 0	0.379456	45	0.410130	57	1.080836	21	2.63535	31	2.43825	34	0.925210	18	**42** 0
10	9501	45	0187	57	0858	22	3504	31	3792	33	5191	19	50
20	9546	45	0243	56	0879	21	3473	31	3758	34	5173	18	40
30	9591	45	0300	57	0901	22	3442	31	3724	34	5155	18	30
40	9636	45	0356	56	0922	21	3411	31	3691	33	5136	19	20
50	9680	44	0413	57	0944	22	3379	32	3657	34	5118	18	10
19 0	0.379725	45	0.410470	57	1.080965	21	2.63348	31	2.43623	34	0.925099	19	**41** 0
10	9770	45	0526	56	0987	22	3317	31	3590	33	5081	18	50
20	9815	45	0583	57	1008	21	3286	31	3556	34	5062	19	40
30	9860	45	0640	57	1030	22	3255	31	3522	34	5044	18	30
40	9905	45	0696	56	1051	21	3224	31	3489	33	5026	18	20
50	9950	45	0753	57	1073	22	3193	31	3455	34	5007	19	10
20 0	0.379994	44	0.410810	57	1.081094	21	2.63162	31	2.43422	33	0.924989	18	**40** 0
	cos		cotg		cosec		sec		tang		sin		

19	
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3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

22	
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2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

32	
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2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

34	
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2	6.8
3	10.2
4	13.6
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6	20.4
7	23.8
8	27.2
9	30.6

35	
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3	10.5
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6	21.0
7	24.5
8	28.0
9	31.5

45	
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2	9.0
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4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

57	
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3	17.1
4	22.8
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6	34.2
7	39.9
8	45.6
9	51.3

67°

22°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.379994		0.410810		1.081094		2.63162		2.43422		0.924989		**40′** 0″
10	0.380039	45	0866	56	1116	22	3131	31	3388	34	4970	19	50
20	0084	45	0923	57	1137	21	3100	31	3355	33	4952	18	40
30	0129	45	0980	57	1159	22	3069	31	3321	34	4934	18	30
40	0174	45	1036	56	1180	21	3038	31	3287	34	4915	19	20
50	0219	45	1093	57	1202	22	3007	31	3254	33	4897	18	10
21 0	0.380263	44	0.411150	57	1.081223	21	2.62976	31	2.43220	34	0.924878	19	**39** 0
10	0308	45	1206	56	1245	22	2945	31	3187	33	4860	18	50
20	0353	45	1263	57	1267	22	2914	31	3153	34	4841	19	40
30	0398	45	1320	57	1288	21	2883	31	3120	33	4823	18	30
40	0443	45	1376	56	1310	22	2852	31	3086	34	4804	19	20
50	0488	45	1433	57	1331	21	2821	31	3053	33	4786	18	10
22 0	0.380532	44	0.411490	57	1.081353	22	2.62790	31	2.43019	34	0.924768	18	**38** 0
10	0577	45	1547	57	1374	21	2759	31	2986	33	4749	19	50
20	0622	45	1603	56	1396	22	2728	31	2952	34	4731	18	40
30	0667	45	1660	57	1418	22	2697	31	2919	33	4712	19	30
40	0712	45	1717	57	1439	21	2666	31	2886	33	4694	18	20
50	0757	45	1773	56	1461	22	2635	31	2852	34	4675	19	10
23 0	0.380801	44	0.411830	57	1.081482	21	2.62604	31	2.42819	33	0.924657	18	**37** 0
10	0846	45	1887	57	1504	22	2573	31	2785	34	4638	19	50
20	0891	45	1943	56	1525	21	2542	31	2752	33	4620	18	40
30	0936	45	2000	57	1547	22	2511	31	2718	34	4601	19	30
40	0981	45	2057	57	1569	22	2480	31	2685	33	4583	18	20
50	1026	45	2114	57	1590	21	2450	30	2652	33	4565	18	10
24 0	0.381070	44	0.412170	56	1.081612	22	2.62419	31	2.42618	34	0.924546	19	**36** 0
10	1115	45	2227	57	1634	22	2388	31	2585	33	4528	18	50
20	1160	45	2284	57	1655	21	2357	31	2551	34	4509	19	40
30	1205	45	2340	56	1677	22	2326	31	2518	33	4491	18	30
40	1250	45	2397	57	1698	21	2295	31	2485	33	4472	19	20
50	1294	44	2454	57	1720	22	2264	31	2451	34	4454	18	10
25 0	0.381339	45	0.412511	57	1.081742	22	2.62234	30	2.42418	33	0.924435	19	**35** 0
10	1384	45	2567	56	1763	21	2203	31	2385	33	4417	18	50
20	1429	45	2624	57	1785	22	2172	31	2351	34	4398	19	40
30	1474	45	2681	57	1807	22	2141	31	2318	33	4380	18	30
40	1519	45	2738	57	1828	21	2110	31	2285	33	4361	19	20
50	1563	44	2794	56	1850	22	2080	30	2251	34	4343	18	10
26 0	0.381608	45	0.412851	57	1.081872	22	2.62049	31	2.42218	33	0.924324	19	**34** 0
10	1653	45	2908	57	1893	21	2018	31	2185	33	4306	18	50
20	1698	45	2965	57	1915	22	1987	31	2152	33	4287	19	40
30	1743	45	3021	56	1936	21	1957	30	2118	34	4269	18	30
40	1787	44	3078	57	1958	22	1926	31	2085	33	4250	19	20
50	1832	45	3135	57	1980	22	1895	31	2052	33	4232	18	10
27 0	0.381877	45	0.413192	57	1.082002	22	2.61864	31	2.42019	33	0.924213	19	**33** 0
10	1922	45	3248	56	2023	21	1834	30	1985	34	4195	18	50
20	1967	45	3305	57	2045	22	1803	31	1952	33	4176	19	40
30	2011	44	3362	57	2067	22	1772	31	1919	33	4158	18	30
40	2056	45	3419	57	2088	21	1742	30	1886	33	4139	19	20
50	2101	45	3475	56	2110	22	1711	31	1852	34	4121	18	10
28 0	0.382146	45	0.413532	57	1.082132	22	2.61680	31	2.41819	33	0.924102	19	**32** 0
10	2191	45	3589	57	2153	21	1650	30	1786	33	4083	19	50
20	2235	44	3646	57	2175	22	1619	31	1753	33	4065	18	40
30	2280	45	3702	56	2197	22	1588	31	1720	33	4046	19	30
40	2325	45	3759	57	2218	21	1558	30	1686	34	4028	18	20
50	2370	45	3816	57	2240	22	1527	31	1653	33	4009	19	10
29 0	0.382415	45	0.413873	57	1.082262	22	2.61496	31	2.41620	33	0.923991	18	**31** 0
10	2459	44	3930	57	2284	22	1466	30	1587	33	3972	19	50
20	2504	45	3986	56	2305	21	1435	31	1554	33	3954	18	40
30	2549	45	4043	57	2327	22	1404	31	1521	33	3935	19	30
40	2594	45	4100	57	2349	22	1374	30	1488	33	3917	18	20
50	2639	45	4157	57	2370	21	1343	31	1454	34	3898	19	10
30 0	0.382683	44	0.414214	57	1.082392	22	2.61313	30	2.41421	33	0.923880	18	**30** 0
	cos		cotg		cosec		sec		tang		sin		

18	
1	1.8
2	3.6
3	5.4
4	7.2
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6	10.8
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8	14.4
9	16.2

21	
1	2.1
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7	14.7
8	16.8
9	18.9

30	
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4	12.0
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6	18.0
7	21.0
8	24.0
9	27.0

32	
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3	9.6
4	12.8
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9	28.8

33	
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44	
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56	
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3	16.8
4	22.4
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6	33.6
7	39.2
8	44.8
9	50.4

67°

22°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.382683		0.414214		1.082392		2.61313		2.41421		0.923880		**30′** 0″
10	2728	45	4270	56	2414	22	1282	31	1388	33	3861	19	50
20	2773	45	4327	57	2436	22	1251	31	1355	33	3842	19	40
30	2818	45	4384	57	2457	21	1221	30	1322	33	3824	18	30
40	2863	45	4441	57	2479	22	1190	31	1289	33	3805	19	20
50	2907	44	4498	57	2501	22	1160	30	1256	33	3787	18	10
31 0	0.382952	45	0.414554	56	1.082523	22	2.61129	31	2.41223	33	0.923768	19	**29** 0
10	2997	45	4611	57	2544	21	1099	30	1190	33	3750	18	50
20	3042	45	4668	57	2566	22	1068	31	1157	33	3731	19	40
30	3087	45	4725	57	2588	22	1038	30	1124	33	3712	19	30
40	3131	44	4782	57	2610	22	1007	31	1091	33	3694	18	20
50	3176	45	4838	56	2632	22	0977	30	1058	33	3675	19	10
32 0	0.383221	45	0.414895	57	1.082653	21	2.60946	31	2.41025	33	0.923657	18	**28** 0
10	3266	45	4952	57	2675	22	0916	30	0992	33	3638	19	50
20	3310	44	5009	57	2697	22	0885	31	0959	33	3620	18	40
30	3355	45	5066	57	2719	22	0855	30	0926	33	3601	19	30
40	3400	45	5123	57	2740	21	0824	31	0893	33	3582	19	20
50	3445	45	5179	56	2762	22	0794	30	0860	33	3564	18	10
33 0	0.383490	45	0.415236	57	1.082784	22	2.60763	31	2.40827	33	0.923545	19	**27** 0
10	3534	44	5293	57	2806	22	0733	30	0794	33	3527	18	50
20	3579	45	5350	57	2828	22	0702	31	0761	33	3508	19	40
30	3624	45	5407	57	2849	21	0672	30	0728	33	3489	18	30
40	3669	45	5464	57	2871	22	0642	30	0695	33	3471	19	20
50	3713	44	5521	57	2893	22	0611	31	0662	33	3452	18	10
34 0	0.383758	45	0.415577	56	1.082915	22	2.60581	30	2.40629	33	0.923434	19	**26** 0
10	3803	45	5634	57	2937	22	0550	31	0596	33	3415	19	50
20	3848	45	5691	57	2958	21	0520	30	0563	33	3396	18	40
30	3892	44	5748	57	2980	22	0490	30	0530	33	3378	19	30
40	3937	45	5805	57	3002	22	0459	31	0497	33	3359	18	20
50	3982	45	5862	57	3024	22	0429	30	0465	32	3341	19	10
35 0	0.384027	45	0.415919	57	1.083046	22	2.60399	30	2.40432	33	0.923322	19	**25** 0
10	4072	45	5975	56	3068	22	0368	31	0399	33	3303	19	50
20	4116	44	6032	57	3090	22	0338	30	0366	33	3285	18	40
30	4161	45	6089	57	3111	21	0307	31	0333	33	3266	19	30
40	4206	45	6146	57	3133	22	0277	30	0300	33	3247	19	20
50	4251	45	6203	57	3155	22	0247	30	0267	33	3229	18	10
36 0	0.384295	44	0.416260	57	1.083177	22	2.60217	30	2.40235	32	0.923210	19	**24** 0
10	4340	45	6317	57	3199	22	0186	31	0202	33	3192	18	50
20	4385	45	6374	57	3221	22	0156	30	0169	33	3173	19	40
30	4430	45	6430	56	3243	22	0126	30	0136	33	3154	19	30
40	4474	44	6487	57	3264	21	0095	31	0103	33	3136	18	20
50	4519	45	6544	57	3286	22	0065	30	0071	32	3117	19	10
37 0	0.384564	45	0.416601	57	1.083308	22	2.60035	30	2.40038	33	0.923098	19	**23** 0
10	4609	45	6658	57	3330	22	2.60005	30	2.40005	33	3080	18	50
20	4653	44	6715	57	3352	22	2.59974	31	2.39972	33	3061	19	40
30	4698	45	6772	57	3374	22	9944	30	9939	33	3042	19	30
40	4743	45	6829	57	3396	22	9914	30	9907	32	3024	18	20
50	4788	45	6886	57	3418	22	9884	30	9874	33	3005	19	10
38 0	0.384832	44	0.416943	57	1.083439	21	2.59853	31	2.39841	33	0.922986	19	**22** 0
10	4877	45	6999	56	3461	22	9823	30	9808	33	2968	18	50
20	4922	45	7056	57	3483	22	9793	30	9776	32	2949	19	40
30	4967	45	7113	57	3505	22	9763	30	9743	33	2931	18	30
40	5011	44	7170	57	3527	22	9733	30	9710	33	2912	19	20
50	5056	45	7227	57	3549	22	9702	31	9678	32	2893	19	10
39 0	0.385101	45	0.417284	57	1.083571	22	2.59672	30	2.39645	33	0.922875	18	**21** 0
10	5146	45	7341	57	3593	22	9642	30	9612	33	2856	19	50
20	5190	44	7398	57	3615	22	9612	30	9580	32	2837	19	40
30	5235	45	7455	57	3637	22	9582	30	9547	33	2818	19	30
40	5280	45	7512	57	3659	22	9552	30	9514	33	2800	18	20
50	5325	45	7569	57	3681	22	9522	30	9482	32	2781	19	10
40 0	0.385369	44	0.417626	57	1.083703	22	2.59491	31	2.39449	33	0.922762	19	**20** 0
	cos		cotg		cosec		sec		tang		sin		

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

67°

22°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.385369		0.417626		1.083703		2.59491		2.39449		0.922762		**20′** 0″
10	5414	45	7683	57	3724	21	9461	30	9416	33	2744	18	50
20	5459	45	7740	57	3746	22	9431	30	9384	32	2725	19	40
30	5503	44	7796	56	3768	22	9401	30	9351	33	2706	19	30
40	5548	45	7853	57	3790	22	9371	30	9318	33	2688	18	20
50	5593	45	7910	57	3812	22	9341	30	9286	32	2669	19	10
41 0	0.385638	45	0.417967	57	1.083834	22	2.59311	30	2.39253	33	0.922650	19	**19** 0
10	5682	44	8024	57	3856	22	9281	30	9221	32	2632	18	50
20	5727	45	8081	57	3878	22	9251	30	9188	33	2613	19	40
30	5772	45	8138	57	3900	22	9221	30	9155	33	2594	19	30
40	5817	45	8195	57	3922	22	9191	30	9123	32	2576	18	20
50	5861	44	8252	57	3944	22	9160	31	9090	33	2557	19	10
42 0	0.385906	45	0.418309	57	1.083966	22	2.59130	30	2.39058	32	0.922538	19	**18** 0
10	5951	45	8366	57	3988	22	9100	30	9025	33	2519	19	50
20	5995	44	8423	57	4010	22	9070	30	8993	32	2501	18	40
30	6040	45	8480	57	4032	22	9040	30	8960	33	2482	19	30
40	6085	45	8537	57	4054	22	9010	30	8928	32	2463	19	20
50	6130	45	8594	57	4076	22	8980	30	8895	33	2445	18	10
43 0	0.386174	44	0.418651	57	1.084098	22	2.58950	30	2.38863	32	0.922426	19	**17** 0
10	6219	45	8708	57	4120	22	8920	30	8830	33	2407	19	50
20	6264	45	8765	57	4142	22	8890	30	8797	33	2388	19	40
30	6309	45	8822	57	4164	22	8860	30	8765	32	2370	18	30
40	6353	44	8879	57	4186	22	8830	30	8733	32	2351	19	20
50	6398	45	8936	57	4208	22	8801	29	8700	33	2332	19	10
44 0	0.386443	45	0.418993	57	1.084230	22	2.58771	30	2.38668	32	0.922313	19	**16** 0
10	6487	44	9050	57	4252	22	8741	30	8635	33	2295	18	50
20	6532	45	9107	57	4274	22	8711	30	8603	32	2276	19	40
30	6577	45	9164	57	4296	22	8681	30	8570	33	2257	19	30
40	6622	45	9221	57	4318	22	8651	30	8538	32	2238	19	20
50	6666	44	9278	57	4340	22	8621	30	8505	33	2220	18	10
45 0	0.386711	45	0.419335	57	1.084362	22	2.58591	30	2.38473	32	0.922201	19	**15** 0
10	6756	45	9392	57	4384	22	8561	30	8441	32	2182	19	50
20	6800	44	9449	57	4406	22	8531	30	8408	33	2163	19	40
30	6845	45	9506	57	4428	22	8501	30	8376	32	2145	18	30
40	6890	45	9563	57	4451	23	8472	29	8343	33	2126	19	20
50	6934	44	9620	57	4473	22	8442	30	8311	32	2107	19	10
46 0	0.386979	45	0.419677	57	1.084495	22	2.58412	30	2.38279	32	0.922088	19	**14** 0
10	7024	45	9734	57	4517	22	8382	30	8246	33	2070	18	50
20	7069	45	9791	57	4539	22	8352	30	8214	32	2051	19	40
30	7113	44	9848	57	4561	22	8322	30	8181	33	2032	19	30
40	7158	45	9905	57	4583	22	8292	30	8149	32	2013	19	20
50	7203	45	0.419962	57	4605	22	8263	29	8117	32	1995	18	10
47 0	0.387247	44	0.420019	57	1.084627	22	2.58233	30	2.38084	33	0.921976	19	**13** 0
10	7292	45	0076	57	4649	22	8203	30	8052	32	1957	19	50
20	7337	45	0133	57	4671	22	8173	30	8020	32	1938	19	40
30	7382	45	0190	57	4693	22	8143	30	7987	33	1920	18	30
40	7426	44	0247	57	4715	22	8114	29	7955	32	1901	19	20
50	7471	45	0304	57	4738	23	8084	30	7923	32	1882	19	10
48 0	0.387516	45	0.420361	57	1.084760	22	2.58054	30	2.37891	32	0.921863	19	**12** 0
10	7560	44	0418	57	4782	22	8024	30	7858	33	1844	19	50
20	7605	45	0475	57	4804	22	7995	29	7826	32	1826	18	40
30	7650	45	0532	57	4826	22	7965	30	7794	32	1807	19	30
40	7694	44	0590	58	4848	22	7935	30	7762	32	1788	19	20
50	7739	45	0647	57	4870	22	7905	30	7729	33	1769	19	10
49 0	0.387784	45	0.420704	57	1.084892	22	2.57876	29	2.37697	32	0.921750	19	**11** 0
10	7828	44	0761	57	4915	23	7846	30	7665	32	1732	18	50
20	7873	45	0818	57	4937	22	7816	30	7633	32	1713	19	40
30	7918	45	0875	57	4959	22	7787	29	7600	33	1694	19	30
40	7962	44	0932	57	4981	22	7757	30	7568	32	1675	19	20
50	8007	45	0989	57	5003	22	7727	30	7536	32	1656	19	10
50 0	0.388052	45	0.421046	57	1.085025	22	2.57698	29	2.37504	32	0.921638	18	**10** 0
	cos		cotg		cosec		sec		tang		sin		

18

1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

21

1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

23

1	2.3
2	4.6
3	6.9
4	9.2
5	11.5
6	13.8
7	16.1
8	18.4
9	20.7

30

1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

44

1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

56

1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

57

1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

67°

22°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.388052		0.421046		1.085025		2.57698		2.37504		0.921638		**10′** 0″
10	8097	45	1103	57	5047	22	7668	30	7472	32	1619	19	50
20	8141	44	1160	57	5070	23	7638	30	7439	33	1600	19	40
30	8186	45	1217	57	5092	22	7609	29	7407	32	1581	19	30
40	8231	45	1274	57	5114	22	7579	30	7375	32	1562	19	20
50	8275	44	1331	57	5136	22	7549	30	7343	32	1543	19	10
51 0	0.388320	45	0.421389	58	1.085158	22	2.57520	29	2.37311	32	0.921525	18	**9** 0
10	8365	45	1446	57	5180	22	7490	30	7279	32	1506	19	50
20	8409	44	1503	57	5203	23	7460	30	7246	33	1487	19	40
30	8454	45	1560	57	5225	22	7431	29	7214	32	1468	19	30
40	8499	45	1617	57	5247	22	7401	30	7182	32	1449	19	20
50	8543	44	1674	57	5269	22	7372	29	7150	32	1430	19	10
52 0	0.388588	45	0.421731	57	1.085291	22	2.57342	30	2.37118	32	0.921412	18	**8** 0
10	8633	45	1788	57	5313	22	7312	30	7086	32	1393	19	50
20	8677	44	1845	57	5336	23	7283	29	7054	32	1374	19	40
30	8722	45	1902	57	5358	22	7253	30	7022	32	1355	19	30
40	8767	45	1960	58	5380	22	7224	29	6990	32	1336	19	20
50	8811	44	2017	57	5402	22	7194	30	6957	33	1317	19	10
53 0	0.388856	45	0.422074	57	1.085424	22	2.57165	29	2.36925	32	0.921299	18	**7** 0
10	8901	45	2131	57	5447	23	7135	30	6893	32	1280	19	50
20	8945	44	2188	57	5469	22	7106	29	6861	32	1261	19	40
30	8990	45	2245	57	5491	22	7076	30	6829	32	1242	19	30
40	9035	45	2302	57	5513	22	7047	29	6797	32	1223	19	20
50	9079	44	2359	57	5536	23	7017	30	6765	32	1204	19	10
54 0	0.389124	45	0.422417	58	1.085558	22	2.56988	29	2.36733	32	0.921185	19	**6** 0
10	9169	45	2474	57	5580	22	6958	30	6701	32	1167	18	50
20	9213	44	2531	57	5602	22	6929	29	6669	32	1148	19	40
30	9258	45	2588	57	5625	23	6899	30	6637	32	1129	19	30
40	9303	45	2645	57	5647	22	6870	29	6605	32	1110	19	20
50	9347	44	2702	57	5669	22	6840	30	6573	32	1091	19	10
55 0	0.389392	45	0.422759	57	1.085691	22	2.56811	29	2.36541	32	0.921072	19	**5** 0
10	9437	45	2817	58	5714	23	6781	30	6509	32	1053	19	50
20	9481	44	2874	57	5736	22	6752	29	6477	32	1034	19	40
30	9526	45	2931	57	5758	22	6722	30	6445	32	1016	18	30
40	9571	45	2988	57	5780	22	6693	29	6413	32	0997	19	20
50	9615	44	3045	57	5803	23	6664	29	6381	32	0978	19	10
56 0	0.389660	45	0.423102	57	1.085825	22	2.56634	30	2.36349	32	0.920959	19	**4** 0
10	9704	44	3159	57	5847	22	6605	29	6318	31	0940	19	50
20	9749	45	3217	58	5869	22	6575	30	6286	32	0921	19	40
30	9794	45	3274	57	5892	23	6546	29	6254	32	0902	19	30
40	9838	44	3331	57	5914	22	6517	29	6222	32	0883	19	20
50	9883	45	3388	57	5936	22	6487	30	6190	32	0864	19	10
57 0	0.389928	45	0.423445	57	1.085959	23	2.56458	29	2.36158	32	0.920845	19	**3** 0
10	0.389972	44	3502	57	5981	22	6428	30	6126	32	0827	18	50
20	0.390017	45	3560	58	6003	22	6399	29	6094	32	0808	19	40
30	0062	45	3617	57	6025	22	6370	29	6062	32	0789	19	30
40	0106	44	3674	57	6048	23	6340	30	6031	31	0770	19	20
50	0151	45	3731	57	6070	22	6311	29	5999	32	0751	19	10
58 0	0.390196	45	0.423788	57	1.086092	22	2.56282	29	2.35967	32	0.920732	19	**2** 0
10	0240	44	3846	58	6115	23	6252	30	5935	32	0713	19	50
20	0285	45	3903	57	6137	22	6223	29	5903	32	0694	19	40
30	0329	44	3960	57	6159	22	6194	29	5871	32	0675	19	30
40	0374	45	4017	57	6182	23	6165	29	5840	31	0656	19	20
50	0419	45	4074	57	6204	22	6135	30	5808	32	0637	19	10
59 0	0.390463	44	0.424132	58	1.086226	22	2.56106	29	2.35776	32	0.920618	19	**1** 0
10	0508	45	4189	57	6249	23	6077	29	5744	32	0600	18	50
20	0553	45	4246	57	6271	22	6047	30	5712	32	0581	19	40
30	0597	44	4303	57	6293	22	6018	29	5681	31	0562	19	30
40	0642	45	4360	57	6316	23	5989	29	5649	32	0543	19	20
50	0687	45	4418	58	6338	22	5960	29	5617	32	0524	19	10
60 0	0.390731	44	0.424475	57	1.086360	22	2.55930	30	2.35585	32	0.920505	19	**0** 0
	cos		cotg		cosec		sec		tang		sin		

19		22		29		31		33		45		57		58	
1	1.9	1	2.2	1	2.9	1	3.1	1	3.3	1	4.5	1	5.7	1	5.8
2	3.8	2	4.4	2	5.8	2	6.2	2	6.6	2	9.0	2	11.4	2	11.6
3	5.7	3	6.6	3	8.7	3	9.3	3	9.9	3	13.5	3	17.1	3	17.4
4	7.6	4	8.8	4	11.6	4	12.4	4	13.2	4	18.0	4	22.8	4	23.2
5	9.5	5	11.0	5	14.5	5	15.5	5	16.5	5	22.5	5	28.5	5	29.0
6	11.4	6	13.2	6	17.4	6	18.6	6	19.8	6	27.0	6	34.2	6	34.8
7	13.3	7	15.4	7	20.3	7	21.7	7	23.1	7	31.5	7	39.9	7	40.6
8	15.2	8	17.6	8	23.2	8	24.8	8	26.4	8	36.0	8	45.6	8	46.4
9	17.1	9	19.8	9	26.1	9	27.9	9	29.7	9	40.5	9	51.3	9	52.2

67°

23°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.390731		0.424475		1.086360		2.55930		2.35585		0.920505		**60′** 0″
10	0776	45	4532	57	6383	23	5901	29	5553	32	0486	19	50
20	0820	44	4589	57	6405	22	5872	29	5522	31	0467	19	40
30	0865	45	4646	57	6427	22	5843	29	5490	32	0448	19	30
40	0910	45	4704	58	6450	23	5814	29	5458	32	0429	19	20
50	0954	44	4761	57	6472	22	5784	30	5427	31	0410	19	10
1 0	0.390999	45	0.424818	57	1.086495	23	2.55755	29	2.35395	32	0.920391	19	**59** 0
10	1043	44	4875	57	6517	22	5726	29	5363	32	0372	19	50
20	1088	45	4933	58	6539	22	5697	29	5331	32	0353	19	40
30	1133	45	4990	57	6562	23	5668	29	5300	31	0334	19	30
40	1177	44	5047	57	6584	22	5639	29	5268	32	0315	19	20
50	1222	45	5104	57	6607	23	5609	30	5236	32	0296	19	10
2 0	0.391267	45	0.425162	58	1.086629	22	2.55580	29	2.35205	31	0.920277	19	**58** 0
10	1311	44	5219	57	6651	22	5551	29	5173	32	0258	19	50
20	1356	45	5276	57	6674	23	5522	29	5141	32	0239	19	40
30	1400	44	5333	57	6696	22	5493	29	5110	31	0220	19	30
40	1445	45	5391	58	6719	23	5464	29	5078	32	0201	19	20
50	1490	45	5448	57	6741	22	5435	29	5046	32	0183	18	10
3 0	0.391534	44	0.425505	57	1.086763	22	2.55405	30	2.35015	31	0.920164	19	**57** 0
10	1579	45	5562	57	6786	23	5376	29	4983	32	0145	19	50
20	1623	44	5620	58	6808	22	5347	29	4952	31	0126	19	40
30	1668	45	5677	57	6831	23	5318	29	4920	32	0107	19	30
40	1713	45	5734	57	6853	22	5289	29	4888	32	0088	19	20
50	1757	44	5791	57	6875	22	5260	29	4857	31	0069	19	10
4 0	0.391802	45	0.425849	58	1.086898	23	2.55231	29	2.34825	32	0.920050	19	**56** 0
10	1847	45	5906	57	6920	22	5202	29	4794	31	0031	19	50
20	1891	44	5963	57	6943	23	5173	29	4762	32	0.920012	19	40
30	1936	45	6021	58	6965	22	5144	29	4730	32	0.919993	19	30
40	1980	44	6078	57	6988	23	5115	29	4699	31	9974	19	20
50	2025	45	6135	57	7010	22	5086	29	4667	32	9955	19	10
5 0	0.392070	45	0.426192	57	1.087033	23	2.55057	29	2.34636	31	0.919936	19	**55** 0
10	2114	44	6250	58	7055	22	5028	29	4604	32	9917	19	50
20	2159	45	6307	57	7078	23	4999	29	4573	31	9898	19	40
30	2203	44	6364	57	7100	22	4970	29	4541	32	9879	19	30
40	2248	45	6422	58	7123	23	4941	29	4510	31	9860	19	20
50	2293	45	6479	57	7145	22	4912	29	4478	32	9841	19	10
6 0	0.392337	44	0.426536	57	1.087167	22	2.54883	29	2.34447	31	0.919821	20	**54** 0
10	2382	45	6593	57	7190	23	4854	29	4415	32	9802	19	50
20	2426	44	6651	58	7212	22	4825	29	4384	31	9783	19	40
30	2471	45	6708	57	7235	23	4796	29	4352	32	9764	19	30
40	2515	44	6765	57	7257	22	4767	29	4321	31	9745	19	20
50	2560	45	6823	58	7280	23	4738	29	4289	32	9726	19	10
7 0	0.392605	45	0.426880	57	1.087302	22	2.54709	29	2.34258	31	0.919707	19	**53** 0
10	2649	44	6937	57	7325	23	4680	29	4226	32	9688	19	50
20	2694	45	6995	58	7347	22	4651	29	4195	31	9669	19	40
30	2738	44	7052	57	7370	23	4622	29	4164	31	9650	19	30
40	2783	45	7109	57	7392	22	4593	29	4132	32	9631	19	20
50	2828	45	7167	58	7415	23	4565	28	4101	31	9612	19	10
8 0	0.392872	44	0.427224	57	1.087437	22	2.54536	29	2.34069	32	0.919593	19	**52** 0
10	2917	45	7281	57	7460	23	4507	29	4038	31	9574	19	50
20	2961	44	7339	58	7483	23	4478	29	4006	32	9555	19	40
30	3006	45	7396	57	7505	22	4449	29	3975	31	9536	19	30
40	3051	45	7453	57	7528	23	4420	29	3944	31	9517	19	20
50	3095	44	7511	58	7550	22	4391	29	3912	32	9498	19	10
9 0	0.393140	45	0.427568	57	1.087573	23	2.54363	28	2.33881	31	0.919479	19	**51** 0
10	3184	44	7625	57	7595	22	4334	29	3850	31	9460	19	50
20	3229	45	7683	58	7618	23	4305	29	3818	32	9441	19	40
30	3273	44	7740	57	7640	22	4276	29	3787	31	9422	19	30
40	3318	45	7797	57	7663	23	4247	29	3756	31	9403	19	20
50	3363	45	7855	58	7685	22	4218	29	3724	32	9383	20	10
10 0	0.393407	44	0.427912	57	1.087708	23	2.54190	28	2.33693	31	0.919364	19	**50** 0
	cos		cotg		cosec		sec		tang		sin		

18	
1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

20	
1	2.0
2	4.0
3	6.0
4	8.0
5	10.0
6	12.0
7	14.0
8	16.0
9	18.0

23	
1	2.3
2	4.6
3	6.9
4	9.2
5	11.5
6	13.8
7	16.1
8	18.4
9	20.7

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

66°

23°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.393407		0.427912		1.087708		2.54190		2.33693		0.919364		**50′** 0″
10	3452	45	7969	57	7731	23	4161	29	3662	31	9345	19	50
20	3496	44	8027	58	7753	22	4132	29	3630	32	9326	19	40
30	3541	45	8084	57	7776	23	4103	29	3599	31	9307	19	30
40	3585	44	8142	58	7798	22	4074	29	3568	31	9288	19	20
50	3630	45	8199	57	7821	23	4046	28	3536	32	9269	19	10
11 0	0.393675	45	0.428256	57	1.087843	22	2.54017	29	2.33505	31	0.919250	19	**49** 0
10	3719	44	8314	58	7866	23	3988	29	3474	31	9231	19	50
20	3764	45	8371	57	7889	23	3959	29	3442	32	9212	19	40
30	3808	44	8428	57	7911	22	3931	28	3411	31	9193	19	30
40	3853	45	8486	58	7934	23	3902	29	3380	31	9174	19	20
50	3897	44	8543	57	7956	22	3873	29	3349	31	9154	20	10
12 0	0.393942	45	0.428601	58	1.087979	23	2.53845	28	2.33317	32	0.919135	19	**48** 0
10	3986	44	8658	57	8002	23	3816	29	3286	31	9116	19	50
20	4031	45	8715	57	8024	22	3787	29	3255	31	9097	19	40
30	4076	45	8773	58	8047	23	3758	29	3224	31	9078	19	30
40	4120	44	8830	57	8070	23	3730	28	3193	31	9059	19	20
50	4165	45	8888	58	8092	22	3701	29	3161	32	9040	19	10
13 0	0.394209	44	0.428945	57	1.088115	23	2.53672	29	2.33130	31	0.919021	19	**47** 0
10	4254	45	9002	57	8137	22	3644	28	3099	31	9002	19	50
20	4298	44	9060	58	8160	23	3615	29	3068	31	8982	20	40
30	4343	45	9117	57	8183	23	3586	29	3037	31	8963	19	30
40	4387	44	9175	58	8205	22	3558	28	3005	32	8944	19	20
50	4432	45	9232	57	8228	23	3529	29	2974	31	8925	19	10
14 0	0.394477	45	0.429289	57	1.088251	23	2.53500	29	2.32943	31	0.918906	19	**46** 0
10	4521	44	9347	58	8273	22	3472	28	2912	31	8887	19	50
20	4566	45	9404	57	8296	23	3443	29	2881	31	8868	19	40
30	4610	44	9462	58	8319	23	3415	28	2850	31	8849	19	30
40	4655	45	9519	57	8341	22	3386	29	2819	31	8829	20	20
50	4699	44	9576	57	8364	23	3357	29	2787	32	8810	19	10
15 0	0.394744	45	0.429634	58	1.088387	23	2.53329	28	2.32756	31	0.918791	19	**45** 0
10	4788	44	9691	57	8409	22	3300	29	2725	31	8772	19	50
20	4833	45	9749	58	8432	23	3272	28	2694	31	8753	19	40
30	4877	44	9806	57	8455	23	3243	29	2663	31	8734	19	30
40	4922	45	9864	58	8477	22	3215	28	2632	31	8715	19	20
50	4967	45	9921	57	8500	23	3186	29	2601	31	8695	20	10
16 0	0.395011	44	0.429979	58	1.088523	23	2.53157	29	2.32570	31	0.918676	19	**44** 0
10	5056	45	0.430036	57	8545	22	3129	28	2539	31	8657	19	50
20	5100	44	0093	57	8568	23	3100	29	2508	31	8638	19	40
30	5145	45	0151	58	8591	23	3072	28	2477	31	8619	19	30
40	5189	44	0208	57	8613	22	3043	29	2446	31	8600	19	20
50	5234	45	0266	58	8636	23	3015	28	2414	32	8581	19	10
17 0	0.395278	44	0.430323	57	1.088659	23	2.52986	29	2.32383	31	0.918561	20	**43** 0
10	5323	45	0381	58	8682	23	2958	28	2352	31	8542	19	50
20	5367	44	0438	57	8704	22	2929	29	2321	31	8523	19	40
30	5412	45	0496	58	8727	23	2901	28	2290	31	8504	19	30
40	5456	44	0553	57	8750	23	2872	29	2259	31	8485	19	20
50	5501	45	0611	58	8772	22	2844	28	2228	31	8466	19	10
18 0	0.395546	45	0.430668	57	1.088795	23	2.52815	29	2.32197	31	0.918446	20	**42** 0
10	5590	44	0726	58	8818	23	2787	28	2166	31	8427	19	50
20	5635	45	0783	57	8841	23	2759	28	2135	31	8408	19	40
30	5679	44	0840	57	8863	22	2730	29	2104	31	8389	19	30
40	5724	45	0898	58	8886	23	2702	28	2074	30	8370	19	20
50	5768	44	0955	57	8909	23	2673	29	2043	31	8350	20	10
19 0	0.395813	45	0.431013	58	1.088932	23	2.52645	28	2.32012	31	0.918331	19	**41** 0
10	5857	44	1070	57	8954	22	2616	29	1981	31	8312	19	50
20	5902	45	1128	58	8977	23	2588	28	1950	31	8293	19	40
30	5946	44	1185	57	9000	23	2560	28	1919	31	8274	19	30
40	5991	45	1243	58	9023	23	2531	29	1888	31	8255	19	20
50	6035	44	1300	57	9045	22	2503	28	1857	31	8235	20	10
20 0	0.396080	45	0.431358	58	1.089068	23	2.52474	29	2.31826	31	0.918216	19	**40** 0
	cos		cotg		cosec		sec		tang		sin		

19	
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3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

28	
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2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

30	
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2	6.0
3	9.0
4	12.0
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7	21.0
8	24.0
9	27.0

32	
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2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

58	
1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

66°

23°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.396080		0.431358		1.089068		2.52474		2.31826		0.918216		**40′** 0″
10	6124	44	1415	57	9091	23	2446	28	1795	31	8197	19	50
20	6169	45	1473	58	9114	23	2418	28	1764	31	8178	19	40
30	6213	44	1530	57	9137	23	2389	29	1733	31	8158	20	30
40	6258	45	1588	58	9159	22	2361	28	1702	31	8139	19	20
50	6302	44	1645	57	9182	23	2333	28	1672	30	8120	19	10
21 0	0.396347	45	0.431703	58	1.089205	23	2.52304	29	2.31641	31	0.918101	19	**39** 0
10	6391	44	1760	57	9228	23	2276	28	1610	31	8082	19	50
20	6436	45	1818	58	9251	23	2248	28	1579	31	8062	20	40
30	6480	44	1876	58	9273	22	2219	29	1548	31	8043	19	30
40	6525	45	1933	57	9296	23	2191	28	1517	31	8024	19	20
50	6569	44	1991	58	9319	23	2163	28	1487	30	8005	19	10
22 0	0.396614	45	0.432048	57	1.089342	23	2.52134	29	2.31456	31	0.917986	19	**38** 0
10	6658	44	2106	58	9365	23	2106	28	1425	31	7966	20	50
20	6703	45	2163	57	9387	22	2078	28	1394	31	7947	19	40
30	6747	44	2221	58	9410	23	2050	28	1363	31	7928	19	30
40	6792	45	2278	57	9433	23	2021	29	1332	31	7909	19	20
50	6836	44	2336	58	9456	23	1993	28	1302	30	7889	20	10
23 0	0.396881	45	0.432393	57	1.089479	23	2.51965	28	2.31271	31	0.917870	19	**37** 0
10	6925	44	2451	58	9502	23	1937	28	1240	31	7851	19	50
20	6970	45	2508	57	9524	22	1908	29	1209	31	7832	19	40
30	7014	44	2566	58	9547	23	1880	28	1179	30	7812	20	30
40	7059	45	2624	58	9570	23	1852	28	1148	31	7793	19	20
50	7103	44	2681	57	9593	23	1824	28	1117	31	7774	19	10
24 0	0.397148	45	0.432739	58	1.089616	23	2.51795	29	2.31086	31	0.917755	19	**36** 0
10	7192	44	2796	57	9639	23	1767	28	1056	30	7735	20	50
20	7237	45	2854	58	9662	23	1739	28	1025	31	7716	19	40
30	7281	44	2911	57	9684	22	1711	28	0994	31	7697	19	30
40	7326	45	2969	58	9707	23	1683	28	0963	31	7678	19	20
50	7370	44	3026	57	9730	23	1654	29	0933	30	7658	20	10
25 0	0.397415	45	0.433084	58	1.089753	23	2.51626	28	2.30902	31	0.917639	19	**35** 0
10	7459	44	3142	58	9776	23	1598	28	0871	31	7620	19	50
20	7504	45	3199	57	9799	23	1570	28	0841	30	7601	19	40
30	7548	44	3257	58	9822	23	1542	28	0810	31	7581	20	30
40	7593	45	3314	57	9845	23	1514	28	0779	31	7562	19	20
50	7637	44	3372	58	9868	23	1485	29	0749	30	7543	19	10
26 0	0.397682	45	0.433430	58	1.089890	22	2.51457	28	2.30718	31	0.917523	20	**34** 0
10	7726	44	3487	57	9913	23	1429	28	0687	31	7504	19	50
20	7771	45	3545	58	9936	23	1401	28	0657	30	7485	19	40
30	7815	44	3602	57	9959	23	1373	28	0626	31	7466	19	30
40	7860	45	3660	58	1.089982	23	1345	28	0595	31	7446	20	20
50	7904	44	3718	58	1.090005	23	1317	28	0565	30	7427	19	10
27 0	0.397949	45	0.433775	57	1.090028	23	2.51289	28	2.30534	31	0.917408	19	**33** 0
10	7993	44	3833	58	0051	23	1261	28	0504	30	7388	20	50
20	8038	45	3890	57	0074	23	1233	28	0473	31	7369	19	40
30	8082	44	3948	58	0097	23	1204	29	0442	31	7350	19	30
40	8127	45	4006	58	0120	23	1176	28	0412	30	7331	19	20
50	8171	44	4063	57	0143	23	1148	28	0381	31	7311	20	10
28 0	0.398215	44	0.434121	58	1.090166	23	2.51120	28	2.30351	30	0.917292	19	**32** 0
10	8260	45	4178	57	0188	22	1092	28	0320	31	7273	19	50
20	8304	44	4236	58	0211	23	1064	28	0290	30	7253	20	40
30	8349	45	4294	58	0234	23	1036	28	0259	31	7234	19	30
40	8393	44	4351	57	0257	23	1008	28	0228	31	7215	19	20
50	8438	45	4409	58	0280	23	0980	28	0198	30	7195	20	10
29 0	0.398482	44	0.434467	58	1.090303	23	2.50952	28	2.30167	31	0.917176	19	**31** 0
10	8527	45	4524	57	0326	23	0924	28	0137	30	7157	19	50
20	8571	44	4582	58	0349	23	0896	28	0106	31	7137	20	40
30	8616	45	4639	57	0372	23	0868	28	0076	30	7118	19	30
40	8660	44	4697	58	0395	23	0840	28	0045	31	7099	19	20
50	8705	45	4755	58	0418	23	0812	28	2.30015	30	7079	20	10
30 0	0.398749	44	0.434812	57	1.090441	23	2.50784	28	2.29984	31	0.917060	19	**30** 0
	cos		cotg		cosec		sec		tang		sin		

19		22		24		28		30		44		57	
1	1.9	1	2.2	1	2.4	1	2.8	1	3.0	1	4.4	1	5.7
2	3.8	2	4.4	2	4.8	2	5.6	2	6.0	2	8.8	2	11.4
3	5.7	3	6.6	3	7.2	3	8.4	3	9.0	3	13.2	3	17.1
4	7.6	4	8.8	4	9.6	4	11.2	4	12.0	4	17.6	4	22.8
5	9.5	5	11.0	5	12.0	5	14.0	5	15.0	5	22.0	5	28.5
6	11.4	6	13.2	6	14.4	6	16.8	6	18.0	6	26.4	6	34.2
7	13.3	7	15.4	7	16.8	7	19.6	7	21.0	7	30.8	7	39.9
8	15.2	8	17.6	8	19.2	8	22.4	8	24.0	8	35.2	8	45.6
9	17.1	9	19.8	9	21.6	9	25.2	9	27.0	9	39.6	9	51.3

66°

23°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.398749		0.434812		1.090441		2.50784		2.29984		0.917060		**30′** 0″
10	8794	45	4870	58	0464	23	0756	28	9954	30	7041	19	50
20	8838	44	4928	58	0487	23	0728	28	9923	31	7021	20	40
30	8882	44	4985	57	0510	23	0700	28	9893	30	7002	19	30
40	8927	45	5043	58	0533	23	0672	28	9862	31	6983	19	20
50	8971	44	5101	58	0556	23	0645	27	9832	30	6963	20	10
31 0	0.399016	45	0.435158	57	1.090579	23	2.50617	28	2.29801	31	0.916944	19	**29** 0
10	9060	44	5216	58	0602	23	0589	28	9771	30	6925	19	50
20	9105	45	5274	58	0625	23	0561	28	9741	30	6905	20	40
30	9149	44	5331	57	0648	23	0533	28	9710	31	6886	19	30
40	9194	45	5389	58	0671	23	0505	28	9680	30	6867	19	20
50	9238	44	5447	58	0694	23	0477	28	9649	31	6847	20	10
32 0	0.399283	45	0.435504	57	1.090717	23	2.50449	28	2.29619	30	0.916828	19	**28** 0
10	9327	44	5562	58	0740	23	0421	28	9588	31	6809	19	50
20	9371	44	5620	58	0763	23	0393	28	9558	30	6789	20	40
30	9416	45	5677	57	0786	23	0366	27	9528	30	6770	19	30
40	9460	44	5735	58	0809	23	0338	28	9497	31	6750	20	20
50	9505	45	5793	58	0832	23	0310	28	9467	30	6731	19	10
33 0	0.399549	44	0.435850	57	1.090855	23	2.50282	28	2.29437	30	0.916712	19	**27** 0
10	9594	45	5908	58	0878	23	0254	28	9406	31	6692	20	50
20	9638	44	5966	58	0902	24	0226	28	9376	30	6673	19	40
30	9683	45	6024	58	0925	23	0199	27	9345	31	6654	19	30
40	9727	44	6081	57	0948	23	0171	28	9315	30	6634	20	20
50	9771	44	6139	58	0971	23	0143	28	9285	30	6615	19	10
34 0	0.399816	45	0.436197	58	1.090994	23	2.50115	28	2.29254	31	0.916595	20	**26** 0
10	9860	44	6254	57	1017	23	0087	28	9224	30	6576	19	50
20	9905	45	6312	58	1040	23	0060	27	9194	30	6557	19	40
30	9949	44	6370	58	1063	23	0032	28	9163	31	6537	20	30
40	0.399994	45	6427	57	1086	23	2.50004	28	9133	30	6518	19	20
50	0.400038	44	6485	58	1109	23	2.49976	28	9103	30	6499	19	10
35 0	0.400082	44	0.436543	58	1.091132	23	2.49948	28	2.29073	30	0.916479	20	**25** 0
10	0127	45	6601	58	1155	23	9921	27	9042	31	6460	19	50
20	0171	44	6658	57	1178	23	9893	28	9012	30	6440	20	40
30	0216	45	6716	58	1202	24	9865	28	8982	30	6421	19	30
40	0260	44	6774	58	1225	23	9837	28	8951	31	6402	19	20
50	0305	45	6832	58	1248	23	9810	27	8921	30	6382	20	10
36 0	0.400349	44	0.436889	57	1.091271	23	2.49782	28	2.28891	30	0.916363	19	**24** 0
10	0393	44	6947	58	1294	23	9754	28	8861	30	6343	20	50
20	0438	45	7005	58	1317	23	9727	27	8830	31	6324	19	40
30	0482	44	7062	57	1340	23	9699	28	8800	30	6304	20	30
40	0527	45	7120	58	1363	23	9671	28	8770	30	6285	19	20
50	0571	44	7178	58	1387	24	9644	27	8740	30	6266	19	10
37 0	0.400616	45	0.437236	58	1.091410	23	2.49616	28	2.28710	30	0.916246	20	**23** 0
10	0660	44	7293	57	1433	23	9588	28	8679	31	6227	19	50
20	0704	44	7351	58	1456	23	9561	27	8649	30	6207	20	40
30	0749	45	7409	58	1479	23	9533	28	8619	30	6188	19	30
40	0793	44	7467	58	1502	23	9505	28	8589	30	6169	19	20
50	0838	45	7524	57	1525	23	9478	27	8559	30	6149	20	10
38 0	0.400882	44	0.437582	58	1.091549	24	2.49450	28	2.28528	31	0.916130	19	**22** 0
10	0926	44	7640	58	1572	23	9422	28	8498	30	6110	20	50
20	0971	45	7698	58	1595	23	9395	27	8468	30	6091	19	40
30	1015	44	7756	58	1618	23	9367	28	8438	30	6071	20	30
40	1060	45	7813	57	1641	23	9339	28	8408	30	6052	19	20
50	1104	44	7871	58	1664	23	9312	27	8378	30	6032	20	10
39 0	0.401149	45	0.437929	58	1.091688	24	2.49284	28	2.28348	30	0.916013	19	**21** 0
10	1193	44	7987	58	1711	23	9257	27	8317	31	5994	19	50
20	1237	44	8044	57	1734	23	9229	28	8287	30	5974	20	40
30	1282	45	8102	58	1757	23	9201	28	8257	30	5955	19	30
40	1326	44	8160	58	1780	23	9174	27	8227	30	5935	20	20
50	1371	45	8218	58	1803	23	9146	28	8197	30	5916	19	10
40 0	0.401415	44	0.438276	58	1.091827	24	2.49119	27	2.28167	30	0.915896	20	**20** 0
	cos		cotg		cosec		sec		tang		sin		

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2	4.0
3	6.0
4	8.0
5	10.0
6	12.0
7	14.0
8	16.0
9	18.0

23	
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2	4.6
3	6.9
4	9.2
5	11.5
6	13.8
7	16.1
8	18.4
9	20.7

27	
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2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

29	
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2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

31	
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2	6.2
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5	15.5
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7	21.7
8	24.8
9	27.9

45	
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2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

58	
1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

66°

23°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.401415		0.438276		1.091827		2.49119		2.28167		0.915896		**20′** 0″
10	1459	44	8333	57	1850	23	9091	28	8137	30	5877	19	50
20	1504	45	8391	58	1873	23	9064	27	8107	30	5857	20	40
30	1548	44	8449	58	1896	23	9036	28	8077	30	5838	19	30
40	1593	45	8507	58	1920	24	9009	27	8047	30	5818	20	20
50	1637	44	8565	58	1943	23	8981	28	8017	30	5799	19	10
41 0	0.401681	44	0.438622	57	1.091966	23	2.48954	27	2.27987	30	0.915779	20	**19** 0
10	1726	45	8680	58	1989	23	8926	28	7956	31	5760	19	50
20	1770	44	8738	58	2012	23	8899	27	7926	30	5741	19	40
30	1815	45	8796	58	2036	24	8871	28	7896	30	5721	20	30
40	1859	44	8854	58	2059	23	8844	27	7866	30	5702	19	20
50	1903	44	8911	57	2082	23	8816	28	7836	30	5682	20	10
42 0	0.401948	45	0.438969	58	1.092105	23	2.48789	27	2.27806	30	0.915663	19	**18** 0
10	1992	44	9027	58	2129	24	8761	28	7776	30	5643	20	50
20	2037	45	9085	58	2152	23	8734	27	7746	30	5624	19	40
30	2081	44	9143	58	2175	23	8706	28	7716	30	5604	20	30
40	2125	44	9201	58	2198	23	8679	27	7686	30	5585	19	20
50	2170	45	9258	57	2222	24	8651	28	7656	30	5565	20	10
43 0	0.402214	44	0.439316	58	1.092245	23	2.48624	27	2.27626	30	0.915546	19	**17** 0
10	2259	45	9374	58	2268	23	8596	28	7596	30	5526	20	50
20	2303	44	9432	58	2291	23	8569	27	7567	29	5507	19	40
30	2347	44	9490	58	2315	24	8542	27	7537	30	5487	20	30
40	2392	45	9548	58	2338	23	8514	28	7507	30	5468	19	20
50	2436	44	9606	58	2361	23	8487	27	7477	30	5448	20	10
44 0	0.402480	44	0.439663	57	1.092384	23	2.48459	28	2.27447	30	0.915429	19	**16** 0
10	2525	45	9721	58	2408	24	8432	27	7417	30	5409	20	50
20	2569	44	9779	58	2431	23	8405	27	7387	30	5390	19	40
30	2614	45	9837	58	2454	23	8377	28	7357	30	5370	20	30
40	2658	44	9895	58	2478	24	8350	27	7327	30	5351	19	20
50	2702	44	0.439953	58	2501	23	8322	28	7297	30	5331	20	10
45 0	0.402747	45	0.440011	58	1.092524	23	2.48295	27	2.27267	30	0.915311	20	**15** 0
10	2791	44	0068	57	2548	24	8268	27	7237	30	5292	19	50
20	2835	44	0126	58	2571	23	8240	28	7208	29	5272	20	40
30	2880	45	0184	58	2594	23	8213	27	7178	30	5253	19	30
40	2924	44	0242	58	2618	24	8186	27	7148	30	5233	20	20
50	2969	45	0300	58	2641	23	8158	28	7118	30	5214	19	10
46 0	0.403013	44	0.440358	58	1.092664	23	2.48131	27	2.27088	30	0.915194	20	**14** 0
10	3057	44	0416	58	2687	23	8104	27	7058	30	5175	19	50
20	3102	45	0474	58	2711	24	8076	28	7028	30	5155	20	40
30	3146	44	0531	57	2734	23	8049	27	6999	29	5136	19	30
40	3190	44	0589	58	2758	24	8022	27	6969	30	5116	20	20
50	3235	45	0647	58	2781	23	7994	28	6939	30	5097	19	10
47 0	0.403279	44	0.440705	58	1.092804	23	2.47967	27	2.26909	30	0.915077	20	**13** 0
10	3323	44	0763	58	2828	24	7940	27	6879	30	5057	20	50
20	3368	45	0821	58	2851	23	7913	27	6849	30	5038	19	40
30	3412	44	0879	58	2874	23	7885	28	6820	29	5018	20	30
40	3457	45	0937	58	2898	24	7858	27	6790	30	4999	19	20
50	3501	44	0995	58	2921	23	7831	27	6760	30	4979	20	10
48 0	0.403545	44	0.441053	58	1.092944	23	2.47804	27	2.26730	30	0.914960	19	**12** 0
10	3590	45	1110	57	2968	24	7776	28	6701	29	4940	20	50
20	3634	44	1168	58	2991	23	7749	27	6671	30	4921	19	40
30	3678	44	1226	58	3014	23	7722	27	6641	30	4901	20	30
40	3723	45	1284	58	3038	24	7695	27	6611	30	4881	20	20
50	3767	44	1342	58	3061	23	7668	27	6582	29	4862	19	10
49 0	0.403811	44	0.441400	58	1.093085	24	2.47640	28	2.26552	30	0.914842	20	**11** 0
10	3856	45	1458	58	3108	23	7613	27	6522	30	4823	19	50
20	3900	44	1516	58	3131	23	7586	27	6492	30	4803	20	40
30	3944	44	1574	58	3155	24	7559	27	6463	29	4784	19	30
40	3989	45	1632	58	3178	23	7532	27	6433	30	4764	20	20
50	4033	44	1690	58	3202	24	7504	28	6403	30	4744	20	10
50 0	0.404078	45	0.441748	58	1.093225	23	2.47477	27	2.26374	29	0.914725	19	**10** 0
	cos		cotg		cosec		sec		tang		sin		

19

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3	5.7
4	7.6
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9	17.1

23

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4	9.2
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6	13.8
7	16.1
8	18.4
9	20.7

26

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3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

28

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4	11.2
5	14.0
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7	19.6
8	22.4
9	25.2

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2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

44

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2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

57

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2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

58

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2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

66°

23°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.404078		0.441748		1.093225		2.47477		2.26374		0.914725		**10′** 0″
10	4122	44	1806	58	3248	23	7450	27	6344	30	4705	20	50
20	4166	44	1864	58	3272	24	7423	27	6314	30	4686	19	40
30	4211	45	1922	58	3295	23	7396	27	6285	29	4666	20	30
40	4255	44	1979	57	3319	24	7369	27	6255	30	4646	20	20
50	4299	44	2037	58	3342	23	7342	27	6225	30	4627	19	10
51 0	0.404344	45	0.442095	58	1.093366	24	2.47314	28	2.26196	29	0.914607	20	**9** 0
10	4388	44	2153	58	3389	23	7287	27	6166	30	4588	19	50
20	4432	44	2211	58	3412	23	7260	27	6136	30	4568	20	40
30	4477	45	2269	58	3436	24	7233	27	6107	29	4548	20	30
40	4521	44	2327	58	3459	23	7206	27	6077	30	4529	19	20
50	4565	44	2385	58	3483	24	7179	27	6047	30	4509	20	10
52 0	0.404610	45	0.442443	58	1.093506	23	2.47152	27	2.26018	29	0.914490	19	**8** 0
10	4654	44	2501	58	3530	24	7125	27	5988	30	4470	20	50
20	4698	44	2559	58	3553	23	7098	27	5959	29	4450	20	40
30	4743	45	2617	58	3577	24	7071	27	5929	30	4431	19	30
40	4787	44	2675	58	3600	23	7044	27	5899	30	4411	20	20
50	4831	44	2733	58	3624	24	7016	28	5870	29	4391	20	10
53 0	0.404876	45	0.442791	58	1.093647	23	2.46989	27	2.25840	30	0.914372	19	**7** 0
10	4920	44	2849	58	3671	24	6962	27	5811	29	4352	20	50
20	4964	44	2907	58	3694	23	6935	27	5781	30	4333	19	40
30	5009	45	2965	58	3718	24	6908	27	5751	30	4313	20	30
40	5053	44	3023	58	3741	23	6881	27	5722	29	4293	20	20
50	5097	44	3081	58	3764	23	6854	27	5692	30	4274	19	10
54 0	0.405142	45	0.443139	58	1.093788	24	2.46827	27	2.25663	29	0.914254	20	**6** 0
10	5186	44	3197	58	3811	23	6800	27	5633	30	4234	20	50
20	5230	44	3255	58	3835	24	6773	27	5604	29	4215	19	40
30	5275	45	3313	58	3859	24	6746	27	5574	30	4195	20	30
40	5319	44	3371	58	3882	23	6719	27	5545	29	4175	20	20
50	5363	44	3429	58	3906	24	6692	27	5515	30	4156	19	10
55 0	0.405408	45	0.443487	58	1.093929	23	2.46665	27	2.25486	29	0.914136	20	**5** 0
10	5452	44	3545	58	3953	24	6638	27	5456	30	4116	20	50
20	5496	44	3603	58	3976	23	6611	27	5427	29	4097	19	40
30	5540	44	3661	58	4000	24	6585	26	5397	30	4077	20	30
40	5585	45	3719	58	4023	23	6558	27	5368	29	4057	20	20
50	5629	44	3777	58	4047	24	6531	27	5338	30	4038	19	10
56 0	0.405673	44	0.443835	58	1.094070	23	2.46504	27	2.25309	29	0.914018	20	**4** 0
10	5718	45	3893	58	4094	24	6477	27	5279	30	3998	20	50
20	5762	44	3951	58	4117	23	6450	27	5250	29	3979	19	40
30	5806	44	4009	58	4141	24	6423	27	5221	29	3959	20	30
40	5851	45	4067	58	4164	23	6396	27	5191	30	3939	20	20
50	5895	44	4125	58	4188	24	6369	27	5162	29	3920	19	10
57 0	0.405939	44	0.444183	58	1.094212	24	2.46342	27	2.25132	30	0.913900	20	**3** 0
10	5984	45	4241	58	4235	23	6315	27	5103	29	3880	20	50
20	6028	44	4300	59	4259	24	6289	26	5073	30	3861	19	40
30	6072	44	4358	58	4282	23	6262	27	5044	29	3841	20	30
40	6116	44	4416	58	4306	24	6235	27	5015	29	3821	20	20
50	6161	45	4474	58	4329	23	6208	27	4985	30	3802	19	10
58 0	0.406205	44	0.444532	58	1.094353	24	2.46181	27	2.24956	29	0.913782	20	**2** 0
10	6249	44	4590	58	4377	24	6154	27	4926	30	3762	20	50
20	6294	45	4648	58	4400	23	6127	27	4897	29	3743	19	40
30	6338	44	4706	58	4424	24	6101	26	4868	29	3723	20	30
40	6382	44	4764	58	4447	23	6074	27	4838	30	3703	20	20
50	6427	45	4822	58	4471	24	6047	27	4809	29	3683	20	10
59 0	0.406471	44	0.444880	58	1.094495	24	2.46020	27	2.24780	29	0.913664	19	**1** 0
10	6515	44	4938	58	4518	23	5993	27	4750	30	3644	20	50
20	6559	44	4996	58	4542	24	5966	27	4721	29	3624	20	40
30	6604	45	5054	58	4565	23	5940	26	4692	29	3605	19	30
40	6648	44	5113	59	4589	24	5913	27	4662	30	3585	20	20
50	6692	44	5171	58	4613	24	5886	27	4633	29	3565	20	10
60 0	0.406737	45	0.445229	58	1.094636	23	2.45859	27	2.24604	29	0.913545	20	**0** 0
	cos		cotg		cosec		sec		tang		sin		

20		24		27		29		31		45		58		59	
1	2.0	1	2.4	1	2.7	1	2.9	1	3.1	1	4.5	1	5.8	1	5.9
2	4.0	2	4.8	2	5.4	2	5.8	2	6.2	2	9.0	2	11.6	2	11.8
3	6.0	3	7.2	3	8.1	3	8.7	3	9.3	3	13.5	3	17.4	3	17.7
4	8.0	4	9.6	4	10.8	4	11.6	4	12.4	4	18.0	4	23.2	4	23.6
5	10.0	5	12.0	5	13.5	5	14.5	5	15.5	5	22.5	5	29.0	5	29.5
6	12.0	6	14.4	6	16.2	6	17.4	6	18.6	6	27.0	6	34.8	6	35.4
7	14.0	7	16.8	7	18.9	7	20.3	7	21.7	7	31.5	7	40.6	7	41.3
8	16.0	8	19.2	8	21.6	8	23.2	8	24.8	8	36.0	8	46.4	8	47.2
9	18.0	9	21.6	9	24.3	9	26.1	9	27.9	9	40.5	9	52.2	9	53.1

66°

24°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.406737		0.445229		1.094636		2.45859		2.24604		0.913545		**60′** 0″
10	6781	44	5287	58	4660	24	5833	26	4574	30	3526	19	50
20	6825	44	5345	58	4684	24	5806	27	4545	29	3506	20	40
30	6870	45	5403	58	4707	23	5779	27	4516	29	3486	20	30
40	6914	44	5461	58	4731	24	5752	27	4487	29	3467	19	20
50	6958	44	5519	58	4754	23	5726	26	4457	30	3447	20	10
1 0	0.407002	44	0.445577	58	1.094778	24	2.45699	27	2.24428	29	0.913427	20	**59** 0
10	7047	45	5635	58	4802	24	5672	27	4399	29	3407	20	50
20	7091	44	5693	58	4825	23	5645	27	4369	30	3388	19	40
30	7135	44	5752	59	4849	24	5619	26	4340	29	3368	20	30
40	7179	44	5810	58	4873	24	5592	27	4311	29	3348	20	20
50	7224	45	5868	58	4896	23	5565	27	4282	29	3328	20	10
2 0	0.407268	44	0.445926	58	1.094920	24	2.45539	26	2.24252	30	0.913309	19	**58** 0
10	7312	44	5984	58	4944	24	5512	27	4223	29	3289	20	50
20	7357	45	6042	58	4967	23	5485	27	4194	29	3269	20	40
30	7401	44	6100	58	4991	24	5458	27	4165	29	3249	20	30
40	7445	44	6158	58	5015	24	5432	26	4136	29	3230	19	20
50	7489	44	6217	59	5038	23	5405	27	4106	30	3210	20	10
3 0	0.407534	45	0.446275	58	1.095062	24	2.45378	27	2.24077	29	0.913190	20	**57** 0
10	7578	44	6333	58	5086	24	5352	26	4048	29	3170	20	50
20	7622	44	6391	58	5110	24	5325	27	4019	29	3151	19	40
30	7667	45	6449	58	5133	23	5299	26	3990	29	3131	20	30
40	7711	44	6507	58	5157	24	5272	27	3960	30	3111	20	20
50	7755	44	6565	58	5181	24	5245	27	3931	29	3091	20	10
4 0	0.407799	44	0.446624	59	1.095204	23	2.45219	26	2.23902	29	0.913072	19	**56** 0
10	7844	45	6682	58	5228	24	5192	27	3873	29	3052	20	50
20	7888	44	6740	58	5252	24	5165	27	3844	29	3032	20	40
30	7932	44	6798	58	5276	24	5139	26	3815	29	3012	20	30
40	7976	44	6856	58	5299	23	5112	27	3786	29	2992	20	20
50	8021	45	6914	58	5323	24	5086	26	3756	30	2973	19	10
5 0	0.408065	44	0.446973	59	1.095347	24	2.45059	27	2.23727	29	0.912953	20	**55** 0
10	8109	44	7031	58	5370	23	5032	27	3698	29	2933	20	50
20	8153	44	7089	58	5394	24	5006	26	3669	29	2913	20	40
30	8198	45	7147	58	5418	24	4979	27	3640	29	2894	19	30
40	8242	44	7205	58	5442	24	4953	26	3611	29	2874	20	20
50	8286	44	7263	58	5465	23	4926	27	3582	29	2854	20	10
6 0	0.408330	44	0.447322	59	1.095489	24	2.44900	26	2.23553	29	0.912834	20	**54** 0
10	8375	45	7380	58	5513	24	4873	27	3524	29	2814	20	50
20	8419	44	7438	58	5537	24	4847	26	3495	29	2795	19	40
30	8463	44	7496	58	5561	24	4820	27	3466	29	2775	20	30
40	8507	44	7554	58	5584	23	4794	26	3437	29	2755	20	20
50	8552	45	7613	59	5608	24	4767	27	3407	30	2735	20	10
7 0	0.408596	44	0.447671	58	1.095632	24	2.44741	26	2.23378	29	0.912715	20	**53** 0
10	8640	44	7729	58	5656	24	4714	27	3349	29	2696	19	50
20	8684	44	7787	58	5679	23	4688	26	3320	29	2676	20	40
30	8729	45	7845	58	5703	24	4661	27	3291	29	2656	20	30
40	8773	44	7904	59	5727	24	4635	26	3262	29	2636	20	20
50	8817	44	7962	58	5751	24	4608	27	3233	29	2616	20	10
8 0	0.408861	44	0.448020	58	1.095775	24	2.44582	26	2.23204	29	0.912596	20	**52** 0
10	8906	45	8078	58	5798	23	4555	27	3175	29	2577	19	50
20	8950	44	8136	58	5822	24	4529	26	3146	29	2557	20	40
30	8994	44	8195	59	5846	24	4502	27	3117	29	2537	20	30
40	9038	44	8253	58	5870	24	4476	26	3088	29	2517	20	20
50	9083	45	8311	58	5894	24	4449	27	3059	29	2497	20	10
9 0	0.409127	44	0.448369	58	1.095917	23	2.44423	26	2.23030	29	0.912477	20	**51** 0
10	9171	44	8428	59	5941	24	4397	26	3001	29	2458	19	50
20	9215	44	8486	58	5965	24	4370	27	2973	28	2438	20	40
30	9260	45	8544	58	5989	24	4344	26	2944	29	2418	20	30
40	9304	44	8602	58	6013	24	4317	27	2915	29	2398	20	20
50	9348	44	8660	58	6037	24	4291	26	2886	29	2378	20	10
10 0	0.409392	44	0.448719	59	1.096060	23	2.44264	27	2.22857	29	0.912358	20	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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9	52.2

65°

24°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.409392		0.448719		1.096060		2.44264		2.22857		0.912358		**50′** 0″
10	9437	45	8777	58	6084	24	4238	26	2828	29	2339	19	50
20	9481	44	8835	58	6108	24	4212	26	2799	29	2319	20	40
30	9525	44	8893	58	6132	24	4185	27	2770	29	2299	20	30
40	9569	44	8952	59	6156	24	4159	26	2741	29	2279	20	20
50	9613	44	9010	58	6180	24	4133	26	2712	29	2259	20	10
11 0	0.409658	45	0.449068	58	1.096204	24	2.44106	27	2.22683	29	0.912239	20	**49** 0
10	9702	44	9126	58	6227	23	4080	26	2654	29	2219	20	50
20	9746	44	9185	59	6251	24	4054	26	2626	28	2200	19	40
30	9790	44	9243	58	6275	24	4027	27	2597	29	2180	20	30
40	9835	45	9301	58	6299	24	4001	26	2568	29	2160	20	20
50	9879	44	9360	59	6323	24	3975	26	2539	29	2140	20	10
12 0	0.409923	44	0.449418	58	1.096347	24	2.43948	27	2.22510	29	0.912120	20	**48** 0
10	0.409967	44	9476	58	6371	24	3922	26	2481	29	2100	20	50
20	0.410011	44	9534	58	6395	24	3896	26	2452	29	2080	20	40
30	0056	45	9593	59	6419	24	3869	27	2424	28	2060	20	30
40	0100	44	9651	58	6442	23	3843	26	2395	29	2041	19	20
50	0144	44	9709	58	6466	24	3817	26	2366	29	2021	20	10
13 0	0.410188	44	0.449768	59	1.096490	24	2.43790	27	2.22337	29	0.912001	20	**47** 0
10	0233	45	9826	58	6514	24	3764	26	2308	29	1981	20	50
20	0277	44	9884	58	6538	24	3738	26	2279	29	1961	20	40
30	0321	44	0.449942	58	6562	24	3712	26	2251	28	1941	20	30
40	0365	44	0.450001	59	6586	24	3685	27	2222	29	1921	20	20
50	0409	44	0059	58	6610	24	3659	26	2193	29	1901	20	10
14 0	0.410454	45	0.450117	58	1.096634	24	2.43633	26	2.22164	29	0.911881	20	**46** 0
10	0498	44	0176	59	6658	24	3607	26	2136	28	1862	19	50
20	0542	44	0234	58	6682	24	3580	27	2107	29	1842	20	40
30	0586	44	0292	58	6706	24	3554	26	2078	29	1822	20	30
40	0630	44	0351	59	6729	23	3528	26	2049	29	1802	20	20
50	0675	45	0409	58	6753	24	3502	26	2021	28	1782	20	10
15 0	0.410719	44	0.450467	58	1.096777	24	2.43476	26	2.21992	29	0.911762	20	**45** 0
10	0763	44	0525	58	6801	24	3449	27	1963	29	1742	20	50
20	0807	44	0584	59	6825	24	3423	26	1934	29	1722	20	40
30	0851	44	0642	58	6849	24	3397	26	1906	28	1702	20	30
40	0896	45	0700	58	6873	24	3371	26	1877	29	1682	20	20
50	0940	44	0759	59	6897	24	3345	26	1848	29	1662	20	10
16 0	0.410984	44	0.450817	58	1.096921	24	2.43318	27	2.21819	29	0.911643	19	**44** 0
10	1028	44	0875	58	6945	24	3292	26	1791	28	1623	20	50
20	1072	44	0934	59	6969	24	3266	26	1762	29	1603	20	40
30	1117	45	0992	58	6993	24	3240	26	1733	29	1583	20	30
40	1161	44	1050	58	7017	24	3214	26	1705	28	1563	20	20
50	1205	44	1109	59	7041	24	3188	26	1676	29	1543	20	10
17 0	0.411249	44	0.451167	58	1.097065	24	2.43162	26	2.21647	29	0.911523	20	**43** 0
10	1293	44	1226	59	7089	24	3135	27	1619	28	1503	20	50
20	1338	45	1284	58	7113	24	3109	26	1590	29	1483	20	40
30	1382	44	1342	58	7137	24	3083	26	1561	29	1463	20	30
40	1426	44	1401	59	7161	24	3057	26	1533	28	1443	20	20
50	1470	44	1459	58	7185	24	3031	26	1504	29	1423	20	10
18 0	0.411514	44	0.451517	58	1.097209	24	2.43005	26	2.21475	29	0.911403	20	**42** 0
10	1559	45	1576	59	7233	24	2979	26	1447	28	1383	20	50
20	1603	44	1634	58	7257	24	2953	26	1418	29	1363	20	40
30	1647	44	1692	58	7281	24	2927	26	1390	28	1343	20	30
40	1691	44	1751	59	7305	24	2901	26	1361	29	1323	20	20
50	1735	44	1809	58	7329	24	2875	26	1332	29	1303	20	10
19 0	0.411779	44	0.451868	59	1.097353	24	2.42848	27	2.21304	28	0.911284	19	**41** 0
10	1824	45	1926	58	7377	24	2822	26	1275	29	1264	20	50
20	1868	44	1984	58	7401	24	2796	26	1247	28	1244	20	40
30	1912	44	2043	59	7425	24	2770	26	1218	29	1224	20	30
40	1956	44	2101	58	7449	24	2744	26	1189	29	1204	20	20
50	2000	44	2159	58	7474	25	2718	26	1161	28	1184	20	10
20 0	0.412045	45	0.452218	59	1.097498	24	2.42692	26	2.21132	29	0.911164	20	**40** 0
	cos		cotg		cosec		sec		tang		sin		

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9	53.1

65°

24°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.412045		0.452218		1.097498		2.42692		2.21132		0.911164		**40′** 0″
10	2089	44	2276	58	7522	24	2666	26	1104	28	1144	20	50
20	2133	44	2335	59	7546	24	2640	26	1075	29	1124	20	40
30	2177	44	2393	58	7570	24	2614	26	1047	28	1104	20	30
40	2221	44	2451	58	7594	24	2588	26	1018	29	1084	20	20
50	2265	44	2510	59	7618	24	2562	26	0990	28	1064	20	10
21 0	0.412310	45	0.452568	58	1.097642	24	2.42536	26	2.20961	29	0.911044	20	**39** 0
10	2354	44	2627	59	7666	24	2510	26	0933	28	1024	20	50
20	2398	44	2685	58	7690	24	2484	26	0904	29	1004	20	40
30	2442	44	2744	59	7714	24	2458	26	0876	28	0984	20	30
40	2486	44	2802	58	7738	24	2432	26	0847	29	0964	20	20
50	2530	44	2860	58	7763	25	2406	26	0819	28	0944	20	10
22 0	0.412575	45	0.452919	59	1.097787	24	2.42380	26	2.20790	29	0.910924	20	**38** 0
10	2619	44	2977	58	7811	24	2354	26	0762	28	0904	20	50
20	2663	44	3036	59	7835	24	2329	25	0733	29	0884	20	40
30	2707	44	3094	58	7859	24	2303	26	0705	28	0864	20	30
40	2751	44	3153	59	7883	24	2277	26	0676	29	0844	20	20
50	2795	44	3211	58	7907	24	2251	26	0648	28	0824	20	10
23 0	0.412840	45	0.453269	58	1.097931	24	2.42225	26	2.20619	29	0.910804	20	**37** 0
10	2884	44	3328	59	7955	24	2199	26	0591	28	0784	20	50
20	2928	44	3386	58	7980	25	2173	26	0562	29	0764	20	40
30	2972	44	3445	59	8004	24	2147	26	0534	28	0744	20	30
40	3016	44	3503	58	8028	24	2121	26	0506	28	0724	20	20
50	3060	44	3562	59	8052	24	2095	26	0477	29	0704	20	10
24 0	0.413104	44	0.453620	58	1.098076	24	2.42070	25	2.20449	28	0.910684	20	**36** 0
10	3149	45	3679	59	8100	24	2044	26	0420	29	0664	20	50
20	3193	44	3737	58	8124	24	2018	26	0392	28	0644	20	40
30	3237	44	3796	59	8149	25	1992	26	0364	28	0624	20	30
40	3281	44	3854	58	8173	24	1966	26	0335	29	0604	20	20
50	3325	44	3912	58	8197	24	1940	26	0307	28	0583	21	10
25 0	0.413369	44	0.453971	59	1.098221	24	2.41914	26	2.20278	29	0.910563	20	**35** 0
10	3413	44	4029	58	8245	24	1889	25	0250	28	0543	20	50
20	3458	45	4088	59	8269	24	1863	26	0222	28	0523	20	40
30	3502	44	4146	58	8294	25	1837	26	0193	29	0503	20	30
40	3546	44	4205	59	8318	24	1811	26	0165	28	0483	20	20
50	3590	44	4263	58	8342	24	1785	26	0137	28	0463	20	10
26 0	0.413634	44	0.454322	59	1.098366	24	2.41760	25	2.20108	29	0.910443	20	**34** 0
10	3678	44	4380	58	8390	24	1734	26	0080	28	0423	20	50
20	3722	44	4439	59	8415	25	1708	26	0052	28	0403	20	40
30	3767	45	4497	58	8439	24	1682	26	2.20023	29	0383	20	30
40	3811	44	4556	59	8463	24	1656	26	2.19995	28	0363	20	20
50	3855	44	4614	58	8487	24	1631	25	9967	28	0343	20	10
27 0	0.413899	44	0.454673	59	1.098511	24	2.41605	26	2.19938	29	0.910323	20	**33** 0
10	3943	44	4731	58	8536	25	1579	26	9910	28	0303	20	50
20	3987	44	4790	59	8560	24	1553	26	9882	28	0283	20	40
30	4031	44	4848	58	8584	24	1528	25	9854	28	0263	20	30
40	4076	45	4907	59	8608	24	1502	26	9825	29	0243	20	20
50	4120	44	4965	58	8633	25	1476	26	9797	28	0222	21	10
28 0	0.414164	44	0.455024	59	1.098657	24	2.41450	26	2.19769	28	0.910202	20	**32** 0
10	4208	44	5082	58	8681	24	1425	25	9740	29	0182	20	50
20	4252	44	5141	59	8705	24	1399	26	9712	28	0162	20	40
30	4296	44	5199	58	8729	24	1373	26	9684	28	0142	20	30
40	4340	44	5258	59	8754	25	1348	25	9656	28	0122	20	20
50	4384	44	5316	58	8778	24	1322	26	9627	29	0102	20	10
29 0	0.414429	45	0.455375	59	1.098802	24	2.41296	26	2.19599	28	0.910082	20	**31** 0
10	4473	44	5434	59	8827	25	1270	26	9571	28	0062	20	50
20	4517	44	5492	58	8851	24	1245	25	9543	28	0042	20	40
30	4561	44	5551	59	8875	24	1219	26	9515	28	0022	20	30
40	4605	44	5609	58	8899	24	1193	26	9486	29	0.910001	21	20
50	4649	44	5668	59	8924	25	1168	25	9458	28	0.909981	20	10
30 0	0.414693	44	0.455726	58	1.098948	24	2.41142	26	2.19430	28	0.909961	20	**30** 0
	cos		cotg		cosec		sec		tang		sin		

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9	52.2

65°

24°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.414693		0.455726		1.098948		2.41142		2.19430		0.909961		**30′** 0″
10	4737	44	5785	59	8972	24	1116	26	9402	28	9941	20	50
20	4781	44	5843	58	8996	24	1091	25	9374	28	9921	20	40
30	4826	45	5902	59	9021	25	1065	26	9345	29	9901	20	30
40	4870	44	5960	58	9045	24	1040	25	9317	28	9881	20	20
50	4914	44	6019	59	9069	24	1014	26	9289	28	9861	20	10
31 0	0.414958	44	0.456078	59	1.099094	25	2.40988	26	2.19261	28	0.909841	20	**29** 0
10	5002	44	6136	58	9118	24	0963	25	9233	28	9820	21	50
20	5046	44	6195	59	9142	24	0937	26	9205	28	9800	20	40
30	5090	44	6253	58	9167	25	0911	26	9176	29	9780	20	30
40	5134	44	6312	59	9191	24	0886	25	9148	28	9760	20	20
50	5178	44	6370	58	9215	24	0860	26	9120	28	9740	20	10
32 0	0.415223	45	0.456429	59	1.099239	24	2.40835	25	2.19092	28	0.909720	20	**28** 0
10	5267	44	6488	59	9264	25	0809	26	9064	28	9700	20	50
20	5311	44	6546	58	9288	24	0784	25	9036	28	9680	20	40
30	5355	44	6605	59	9312	24	0758	26	9008	28	9659	21	30
40	5399	44	6663	58	9337	25	0732	26	8980	28	9639	20	20
50	5443	44	6722	59	9361	24	0707	25	8952	28	9619	20	10
33 0	0.415487	44	0.456781	59	1.099386	25	2.40681	26	2.18923	29	0.909599	20	**27** 0
10	5531	44	6839	58	9410	24	0656	25	8895	28	9579	20	50
20	5575	44	6898	59	9434	24	0630	26	8867	28	9559	20	40
30	5619	44	6956	58	9459	25	0605	25	8839	28	9539	20	30
40	5664	45	7015	59	9483	24	0579	26	8811	28	9518	21	20
50	5708	44	7074	59	9507	24	0554	25	8783	28	9498	20	10
34 0	0.415752	44	0.457132	58	1.099532	25	2.40528	26	2.18755	28	0.909478	20	**26** 0
10	5796	44	7191	59	9556	24	0503	25	8727	28	9458	20	50
20	5840	44	7249	58	9580	24	0477	26	8699	28	9438	20	40
30	5884	44	7308	59	9605	25	0452	25	8671	28	9418	20	30
40	5928	44	7367	59	9629	24	0426	26	8643	28	9397	21	20
50	5972	44	7425	58	9654	25	0401	25	8615	28	9377	20	10
35 0	0.416016	44	0.457484	59	1.099678	24	2.40375	26	2.18587	28	0.909357	20	**25** 0
10	6060	44	7543	59	9702	24	0350	25	8559	28	9337	20	50
20	6104	44	7601	58	9727	25	0324	26	8531	28	9317	20	40
30	6149	45	7660	59	9751	24	0299	25	8503	28	9297	20	30
40	6193	44	7718	58	9776	25	0273	26	8475	28	9276	21	20
50	6237	44	7777	59	9800	24	0248	25	8447	28	9256	20	10
36 0	0.416281	44	0.457836	59	1.099824	24	2.40222	26	2.18419	28	0.909236	20	**24** 0
10	6325	44	7894	58	9849	25	0197	25	8391	28	9216	20	50
20	6369	44	7953	59	9873	24	0172	25	8363	28	9196	20	40
30	6413	44	8012	59	9898	25	0146	26	8335	28	9176	20	30
40	6457	44	8070	58	9922	24	0121	25	8307	28	9155	21	20
50	6501	44	8129	59	9946	24	0095	26	8279	28	9135	20	10
37 0	0.416545	44	0.458188	59	1.099971	25	2.40070	25	2.18251	28	0.909115	20	**23** 0
10	6589	44	8246	58	1.099995	24	0045	25	8223	28	9095	20	50
20	6633	44	8305	59	1.100020	25	2.40019	26	8195	28	9075	20	40
30	6677	44	8364	59	0044	24	2.39994	25	8167	28	9054	21	30
40	6722	45	8422	58	0069	25	9968	26	8139	28	9034	20	20
50	6766	44	8481	59	0093	24	9943	25	8112	27	9014	20	10
38 0	0.416810	44	0.458540	59	1.100118	25	2.39918	25	2.18084	28	0.908994	20	**22** 0
10	6854	44	8598	58	0142	24	9892	26	8056	28	8974	20	50
20	6898	44	8657	59	0166	24	9867	25	8028	28	8953	21	40
30	6942	44	8716	59	0191	25	9842	25	8000	28	8933	20	30
40	6986	44	8774	58	0215	24	9816	26	7972	28	8913	20	20
50	7030	44	8833	59	0240	25	9791	25	7944	28	8893	20	10
39 0	0.417074	44	0.458892	59	1.100264	24	2.39766	25	2.17916	28	0.908872	21	**21** 0
10	7118	44	8950	58	0289	25	9740	26	7888	28	8852	20	50
20	7162	44	9009	59	0313	24	9715	25	7861	27	8832	20	40
30	7206	44	9068	59	0338	25	9690	25	7833	28	8812	20	30
40	7250	44	9127	59	0362	24	9664	26	7805	28	8792	20	20
50	7294	44	9185	58	0387	25	9639	25	7777	28	8771	21	10
40 0	0.417338	44	0.459244	59	1.100411	24	2.39614	25	2.17749	28	0.908751	20	**20** 0
	cos		cotg		cosec		sec		tang		sin		

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	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.417338		0.459244		1.100411		2.39614		2.17749		0.908751		**20′** 0″
10	7383	45	9303	59	0436	25	9588	26	7721	28	8731	20	50
20	7427	44	9361	58	0460	24	9563	25	7694	27	8711	20	40
30	7471	44	9420	59	0485	25	9538	25	7666	28	8690	21	30
40	7515	44	9479	59	0509	24	9513	25	7638	28	8670	20	20
50	7559	44	9538	59	0534	25	9487	26	7610	28	8650	20	10
41 0	0.417603	44	0.459596	58	1.100558	24	2.39462	25	2.17582	28	0.908630	20	**19** 0
10	7647	44	9655	59	0583	25	9437	25	7554	28	8609	21	50
20	7691	44	9714	59	0607	24	9411	26	7527	27	8589	20	40
30	7735	44	9772	58	0632	25	9386	25	7499	28	8569	20	30
40	7779	44	9831	59	0656	24	9361	25	7471	28	8549	20	20
50	7823	44	9890	59	0681	25	9336	25	7443	28	8528	21	10
42 0	0.417867	44	0.459949	59	1.100706	25	2.39311	25	2.17416	27	0.908508	20	**18** 0
10	7911	44	0.460007	58	0730	24	9285	26	7388	28	8488	20	50
20	7955	44	0066	59	0755	25	9260	25	7360	28	8468	20	40
30	7999	44	0125	59	0779	24	9235	25	7332	28	8447	21	30
40	8043	44	0184	59	0804	25	9210	25	7305	27	8427	20	20
50	8087	44	0242	58	0828	24	9185	25	7277	28	8407	20	10
43 0	0.418131	44	0.460301	59	1.100853	25	2.39159	26	2.17249	28	0.908387	20	**17** 0
10	8175	44	0360	59	0877	24	9134	25	7221	28	8366	21	50
20	8219	44	0419	59	0902	25	9109	25	7194	27	8346	20	40
30	8263	44	0477	58	0927	25	9084	25	7166	28	8326	20	30
40	8307	44	0536	59	0951	24	9059	25	7138	28	8305	21	20
50	8352	45	0595	59	0976	25	9033	26	7111	27	8285	20	10
44 0	0.418396	44	0.460654	59	1.101000	24	2.39008	25	2.17083	28	0.908265	20	**16** 0
10	8440	44	0712	58	1025	25	8983	25	7055	28	8245	20	50
20	8484	44	0771	59	1050	25	8958	25	7027	28	8224	21	40
30	8528	44	0830	59	1074	24	8933	25	7000	27	8204	20	30
40	8572	44	0889	59	1099	25	8908	25	6972	28	8184	20	20
50	8616	44	0948	59	1123	24	8883	25	6944	28	8163	21	10
45 0	0.418660	44	0.461006	58	1.101148	25	2.38857	26	2.16917	27	0.908143	20	**15** 0
10	8704	44	1065	59	1173	25	8832	25	6889	28	8123	20	50
20	8748	44	1124	59	1197	24	8807	25	6861	28	8103	20	40
30	8792	44	1183	59	1222	25	8782	25	6834	27	8082	21	30
40	8836	44	1241	58	1246	24	8757	25	6806	28	8062	20	20
50	8880	44	1300	59	1271	25	8732	25	6779	27	8042	20	10
46 0	0.418924	44	0.461359	59	1.101296	25	2.38707	25	2.16751	28	0.908021	21	**14** 0
10	8968	44	1418	59	1320	24	8682	25	6723	28	8001	20	50
20	9012	44	1477	59	1345	25	8657	25	6696	27	7981	20	40
30	9056	44	1535	58	1370	25	8632	25	6668	28	7960	21	30
40	9100	44	1594	59	1394	24	8607	25	6640	28	7940	20	20
50	9144	44	1653	59	1419	25	8581	26	6613	27	7920	20	10
47 0	0.419188	44	0.461712	59	1.101444	25	2.38556	25	2.16585	28	0.907899	21	**13** 0
10	9232	44	1771	59	1468	24	8531	25	6558	27	7879	20	50
20	9276	44	1830	59	1493	25	8506	25	6530	28	7859	20	40
30	9320	44	1888	58	1518	25	8481	25	6503	27	7838	21	30
40	9364	44	1947	59	1542	24	8456	25	6475	28	7818	20	20
50	9408	44	2006	59	1567	25	8431	25	6447	28	7798	20	10
48 0	0.419452	44	0.462065	59	1.101592	25	2.38406	25	2.16420	27	0.907777	21	**12** 0
10	9496	44	2124	59	1616	24	8381	25	6392	28	7757	20	50
20	9540	44	2183	59	1641	25	8356	25	6365	27	7737	20	40
30	9584	44	2241	58	1666	25	8331	25	6337	28	7716	21	30
40	9628	44	2300	59	1690	24	8306	25	6310	27	7696	20	20
50	9672	44	2359	59	1715	25	8281	25	6282	28	7676	20	10
49 0	0.419716	44	0.462418	59	1.101740	25	2.38256	25	2.16255	27	0.907655	21	**11** 0
10	9760	44	2477	59	1764	24	8231	25	6227	28	7635	20	50
20	9804	44	2536	59	1789	25	8206	25	6200	27	7615	20	40
30	9848	44	2594	58	1814	25	8181	25	6172	28	7594	21	30
40	9892	44	2653	59	1839	25	8156	25	6145	27	7574	20	20
50	9936	44	2712	59	1863	24	8131	25	6117	28	7554	20	10
50 0	0.419980	44	0.462771	59	1.101888	25	2.38106	25	2.16090	27	0.907533	21	**10** 0
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4	23.2
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9	52.2

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	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.419980		0.462771		1.101888		2.38106		2.16090		0.907533		**10′** 0″
10	0.420024	44	2830	59	1913	25	8082	24	6062	28	7513	20	50
20	0068	44	2889	59	1937	24	8057	25	6035	27	7493	20	40
30	0112	44	2948	59	1962	25	8032	25	6007	28	7472	21	30
40	0156	44	3007	59	1987	25	8007	25	5980	27	7452	20	20
50	0200	44	3065	58	2012	25	7982	25	5952	28	7431	21	10
51 0	0.420244	44	0.463124	59	1.102036	24	2.37957	25	2.15925	27	0.907411	20	**9** 0
10	0288	44	3183	59	2061	25	7932	25	5897	28	7391	20	50
20	0332	44	3242	59	2086	25	7907	25	5870	27	7370	21	40
30	0376	44	3301	59	2111	25	7882	25	5842	28	7350	20	30
40	0420	44	3360	59	2135	24	7857	25	5815	27	7330	20	20
50	0464	44	3419	59	2160	25	7832	25	5788	27	7309	21	10
52 0	0.420508	44	0.463478	59	1.102185	25	2.37808	24	2.15760	28	0.907289	20	**8** 0
10	0552	44	3537	59	2210	25	7783	25	5733	27	7268	21	50
20	0596	44	3595	58	2234	24	7758	25	5705	28	7248	20	40
30	0640	44	3654	59	2259	25	7733	25	5678	27	7228	20	30
40	0684	44	3713	59	2284	25	7708	25	5651	27	7207	21	20
50	0728	44	3772	59	2309	25	7683	25	5623	28	7187	20	10
53 0	0.420772	44	0.463831	59	1.102334	25	2.37658	25	2.15596	27	0.907166	21	**7** 0
10	0816	44	3890	59	2358	24	7634	24	5568	28	7146	20	50
20	0860	44	3949	59	2383	25	7609	25	5541	27	7126	20	40
30	0904	44	4008	59	2408	25	7584	25	5514	27	7105	21	30
40	0948	44	4067	59	2433	25	7559	25	5486	28	7085	20	20
50	0992	44	4126	59	2458	25	7534	25	5459	27	7064	21	10
54 0	0.421036	44	0.464185	59	1.102482	24	2.37509	25	2.15432	27	0.907044	20	**6** 0
10	1080	44	4243	58	2507	25	7485	24	5404	28	7024	20	50
20	1124	44	4302	59	2532	25	7460	25	5377	27	7003	21	40
30	1168	44	4361	59	2557	25	7435	25	5350	27	6983	20	30
40	1212	44	4420	59	2582	25	7410	25	5322	28	6962	21	20
50	1256	44	4479	59	2606	24	7386	24	5295	27	6942	20	10
55 0	0.421300	44	0.464538	59	1.102631	25	2.37361	25	2.15268	27	0.906922	20	**5** 0
10	1344	44	4597	59	2656	25	7336	25	5240	28	6901	21	50
20	1388	44	4656	59	2681	25	7311	25	5213	27	6881	20	40
30	1432	44	4715	59	2706	25	7286	25	5186	27	6860	21	30
40	1476	44	4774	59	2731	25	7262	24	5158	28	6840	20	20
50	1519	43	4833	59	2755	24	7237	25	5131	27	6819	21	10
56 0	0.421563	44	0.464892	59	1.102780	25	2.37212	25	2.15104	27	0.906799	20	**4** 0
10	1607	44	4951	59	2805	25	7187	25	5077	27	6778	21	50
20	1651	44	5010	59	2830	25	7163	24	5049	28	6758	20	40
30	1695	44	5069	59	2855	25	7138	25	5022	27	6738	20	30
40	1739	44	5128	59	2880	25	7113	25	4995	27	6717	21	20
50	1783	44	5187	59	2905	25	7089	24	4967	28	6697	20	10
57 0	0.421827	44	0.465246	59	1.102930	25	2.37064	25	2.14940	27	0.906676	21	**3** 0
10	1871	44	5305	59	2954	24	7039	25	4913	27	6656	20	50
20	1915	44	5364	59	2979	25	7015	24	4886	27	6635	21	40
30	1959	44	5423	59	3004	25	6990	25	4858	28	6615	20	30
40	2003	44	5482	59	3029	25	6965	25	4831	27	6594	21	20
50	2047	44	5541	59	3054	25	6940	25	4804	27	6574	20	10
58 0	0.422091	44	0.465600	59	1.103079	25	2.36916	24	2.14777	27	0.906554	20	**2** 0
10	2135	44	5659	59	3104	25	6891	25	4750	27	6533	21	50
20	2179	44	5718	59	3129	25	6866	25	4722	28	6513	20	40
30	2223	44	5777	59	3154	25	6842	24	4695	27	6492	21	30
40	2267	44	5836	59	3178	24	6817	25	4668	27	6472	20	20
50	2311	44	5895	59	3203	25	6793	24	4641	27	6451	21	10
59 0	0.422355	44	0.465954	59	1.103228	25	2.36768	25	2.14614	27	0.906431	20	**1** 0
10	2399	44	6013	59	3253	25	6743	25	4586	28	6410	21	50
20	2442	43	6072	59	3278	25	6719	24	4559	27	6390	20	40
30	2486	44	6131	59	3303	25	6694	25	4532	27	6369	21	30
40	2530	44	6190	59	3328	25	6669	25	4505	27	6349	20	20
50	2574	44	6249	59	3353	25	6645	24	4478	27	6328	21	10
60 0	0.422618	44	0.466308	59	1.103378	25	2.36620	25	2.14451	27	0.906308	20	**0** 0
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9	53.1

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25°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.422618		0.466308		1.103378		2.36620		2.14451		0.906308		**60′** 0″
10	2662	44	6367	59	3403	25	6596	24	4424	27	6287	21	50
20	2706	44	6426	59	3428	25	6571	25	4396	28	6267	20	40
30	2750	44	6485	59	3453	25	6546	25	4369	27	6246	21	30
40	2794	44	6544	59	3478	25	6522	24	4342	27	6226	20	20
50	2838	44	6603	59	3503	25	6497	25	4315	27	6205	21	10
1 0	0.422882	44	0.466662	59	1.103528	25	2.36473	24	2.14288	27	0.906185	20	**59** 0
10	2926	44	6721	59	3553	25	6448	25	4261	27	6164	21	50
20	2970	44	6780	59	3578	25	6424	24	4234	27	6144	20	40
30	3014	44	6839	59	3603	25	6399	25	4207	27	6123	21	30
40	3058	44	6898	59	3628	25	6374	25	4180	27	6103	20	20
50	3102	44	6957	59	3653	25	6350	24	4152	28	6082	21	10
2 0	0.423145	43	0.467016	59	1.103678	25	2.36325	25	2.14125	27	0.906062	20	**58** 0
10	3189	44	7075	59	3703	25	6301	24	4098	27	6041	21	50
20	3233	44	7134	59	3728	25	6276	25	4071	27	6021	20	40
30	3277	44	7193	59	3753	25	6252	24	4044	27	6000	21	30
40	3321	44	7252	59	3778	25	6227	25	4017	27	5980	20	20
50	3365	44	7311	59	3803	25	6203	24	3990	27	5959	21	10
3 0	0.423409	44	0.467371	60	1.103828	25	2.36178	25	2.13963	27	0.905939	20	**57** 0
10	3453	44	7430	59	3853	25	6154	24	3936	27	5918	21	50
20	3497	44	7489	59	3878	25	6129	25	3909	27	5898	20	40
30	3541	44	7548	59	3903	25	6105	24	3882	27	5877	21	30
40	3585	44	7607	59	3928	25	6080	25	3855	27	5857	20	20
50	3629	44	7666	59	3953	25	6056	24	3828	27	5836	21	10
4 0	0.423673	44	0.467725	59	1.103978	25	2.36031	25	2.13801	27	0.905815	21	**56** 0
10	3716	43	7784	59	4003	25	6007	24	3774	27	5795	20	50
20	3760	44	7843	59	4028	25	5982	25	3747	27	5774	21	40
30	3804	44	7902	59	4053	25	5958	24	3720	27	5754	20	30
40	3848	44	7961	59	4078	25	5934	24	3693	27	5733	21	20
50	3892	44	8020	59	4103	25	5909	25	3666	27	5713	20	10
5 0	0.423936	44	0.468080	60	1.104128	25	2.35885	24	2.13639	27	0.905692	21	**55** 0
10	3980	44	8139	59	4153	25	5860	25	3612	27	5672	20	50
20	4024	44	8198	59	4178	25	5836	24	3585	27	5651	21	40
30	4068	44	8257	59	4203	25	5811	25	3558	27	5630	21	30
40	4112	44	8316	59	4228	25	5787	24	3531	27	5610	20	20
50	4156	44	8375	59	4253	25	5763	24	3504	27	5589	21	10
6 0	0.424199	43	0.468434	59	1.104278	25	2.35738	25	2.13477	27	0.905569	20	**54** 0
10	4243	44	8493	59	4303	25	5714	24	3450	27	5548	21	50
20	4287	44	8552	59	4328	25	5689	25	3423	27	5528	20	40
30	4331	44	8612	60	4354	26	5665	24	3396	27	5507	21	30
40	4375	44	8671	59	4379	25	5641	24	3369	27	5487	20	20
50	4419	44	8730	59	4404	25	5616	25	3342	27	5466	21	10
7 0	0.424463	44	0.468789	59	1.104429	25	2.35592	24	2.13316	26	0.905445	21	**53** 0
10	4507	44	8848	59	4454	25	5568	24	3289	27	5425	20	50
20	4551	44	8907	59	4479	25	5543	25	3262	27	5404	21	40
30	4595	44	8966	59	4504	25	5519	24	3235	27	5384	20	30
40	4638	43	9026	60	4529	25	5494	25	3208	27	5363	21	20
50	4682	44	9085	59	4554	25	5470	24	3181	27	5342	21	10
8 0	0.424726	44	0.469144	59	1.104580	26	2.35446	24	2.13154	27	0.905322	20	**52** 0
10	4770	44	9203	59	4605	25	5421	25	3127	27	5301	21	50
20	4814	44	9262	59	4630	25	5397	24	3100	27	5281	20	40
30	4858	44	9321	59	4655	25	5373	24	3074	26	5260	21	30
40	4902	44	9380	59	4680	25	5349	24	3047	27	5239	21	20
50	4946	44	9440	60	4705	25	5324	25	3020	27	5219	20	10
9 0	0.424990	44	0.469499	59	1.104730	25	2.35300	24	2.12993	27	0.905198	21	**51** 0
10	5033	43	9558	59	4755	25	5276	24	2966	27	5178	20	50
20	5077	44	9617	59	4781	26	5251	25	2939	27	5157	21	40
30	5121	44	9676	59	4806	25	5227	24	2913	26	5136	21	30
40	5165	44	9736	60	4831	25	5203	24	2886	27	5116	20	20
50	5209	44	9795	59	4856	25	5179	24	2859	27	5095	21	10
10 0	0.425253	44	0.469854	59	1.104881	25	2.35154	25	2.12832	27	0.905075	20	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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9	38.7

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8	47.2
9	53.1

64°

25°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.425253		0.469854		1.104881		2.35154		2.12832		0.905075		**50′** 0″
10	5297	44	9913	59	4906	25	5130	24	2805	27	5054	21	50
20	5341	44	0.469972	59	4932	26	5106	24	2779	26	5033	21	40
30	5384	43	0.470031	59	4957	25	5081	25	2752	27	5013	20	30
40	5428	44	0091	60	4982	25	5057	24	2725	27	4992	21	20
50	5472	44	0150	59	5007	25	5033	24	2698	27	4971	21	10
11 0	0.425516	44	0.470209	59	1.105032	25	2.35009	24	2.12671	27	0.904951	20	**49** 0
10	5560	44	0268	59	5058	26	4985	24	2645	26	4930	21	50
20	5604	44	0327	59	5083	25	4960	25	2618	27	4910	20	40
30	5648	44	0387	60	5108	25	4936	24	2591	27	4889	21	30
40	5692	44	0446	59	5133	25	4912	24	2564	27	4868	21	20
50	5735	43	0505	59	5158	25	4888	24	2538	26	4848	20	10
12 0	0.425779	44	0.470564	59	1.105184	26	2.34863	25	2.12511	27	0.904827	21	**48** 0
10	5823	44	0623	59	5209	25	4839	24	2484	27	4806	21	50
20	5867	44	0683	60	5234	25	4815	24	2457	27	4786	20	40
30	5911	44	0742	59	5259	25	4791	24	2431	26	4765	21	30
40	5955	44	0801	59	5284	25	4767	24	2404	27	4744	21	20
50	5999	44	0860	59	5310	26	4743	24	2377	27	4724	20	10
13 0	0.426042	43	0.470920	60	1.105335	25	2.34718	25	2.12350	27	0.904703	21	**47** 0
10	6086	44	0979	59	5360	25	4694	24	2324	26	4683	20	50
20	6130	44	1038	59	5385	25	4670	24	2297	27	4662	21	40
30	6174	44	1097	59	5411	26	4646	24	2270	27	4641	21	30
40	6218	44	1157	60	5436	25	4622	24	2244	26	4621	20	20
50	6262	44	1216	59	5461	25	4598	24	2217	27	4600	21	10
14 0	0.426306	44	0.471275	59	1.105486	25	2.34573	25	2.12190	27	0.904579	21	**46** 0
10	6349	43	1334	59	5512	26	4549	24	2164	26	4559	20	50
20	6393	44	1394	60	5537	25	4525	24	2137	27	4538	21	40
30	6437	44	1453	59	5562	25	4501	24	2110	27	4517	21	30
40	6481	44	1512	59	5587	25	4477	24	2084	26	4497	20	20
50	6525	44	1571	59	5613	26	4453	24	2057	27	4476	21	10
15 0	0.426569	44	0.471631	60	1.105638	25	2.34429	24	2.12030	27	0.904455	21	**45** 0
10	6613	44	1690	59	5663	25	4405	24	2004	26	4434	21	50
20	6656	43	1749	59	5689	26	4381	24	1977	27	4414	20	40
30	6700	44	1808	59	5714	25	4357	24	1950	27	4393	21	30
40	6744	44	1868	60	5739	25	4332	25	1924	26	4372	21	20
50	6788	44	1927	59	5764	25	4308	24	1897	27	4352	20	10
16 0	0.426832	44	0.471986	59	1.105790	26	2.34284	24	2.11871	26	0.904331	21	**44** 0
10	6876	44	2046	60	5815	25	4260	24	1844	27	4310	21	50
20	6920	44	2105	59	5840	25	4236	24	1817	27	4290	20	40
30	6963	43	2164	59	5866	26	4212	24	1791	26	4269	21	30
40	7007	44	2223	59	5891	25	4188	24	1764	27	4248	21	20
50	7051	44	2283	60	5916	25	4164	24	1738	26	4228	20	10
17 0	0.427095	44	0.472342	59	1.105942	26	2.34140	24	2.11711	27	0.904207	21	**43** 0
10	7139	44	2401	59	5967	25	4116	24	1684	27	4186	21	50
20	7183	44	2461	60	5992	25	4092	24	1658	26	4165	21	40
30	7226	43	2520	59	6018	26	4068	24	1631	27	4145	20	30
40	7270	44	2579	59	6043	25	4044	24	1605	26	4124	21	20
50	7314	44	2639	60	6068	25	4020	24	1578	27	4103	21	10
18 0	0.427358	44	0.472698	59	1.106094	26	2.33996	24	2.11552	26	0.904083	20	**42** 0
10	7402	44	2757	59	6119	25	3972	24	1525	27	4062	21	50
20	7446	44	2816	59	6144	25	3948	24	1499	26	4041	21	40
30	7489	43	2876	60	6170	26	3924	24	1472	27	4020	21	30
40	7533	44	2935	59	6195	25	3900	24	1445	27	4000	20	20
50	7577	44	2994	59	6220	25	3876	24	1419	26	3979	21	10
19 0	0.427621	44	0.473054	60	1.106246	26	2.33852	24	2.11392	27	0.903958	21	**41** 0
10	7665	44	3113	59	6271	25	3828	24	1366	26	3937	21	50
20	7708	43	3172	59	6297	26	3804	24	1339	27	3917	20	40
30	7752	44	3232	60	6322	25	3780	24	1313	26	3896	21	30
40	7796	44	3291	59	6347	25	3756	24	1286	27	3875	21	20
50	7840	44	3350	59	6373	26	3732	24	1260	26	3855	20	10
20 0	0.427884	44	0.473410	60	1.106398	25	2.33708	24	2.11233	27	0.903834	21	**40** 0
	cos		cotg		cosec		sec		tang		sin		

21

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8	21.6
9	24.3

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9	25.2

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8	35.2
9	39.6

60

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3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

64°

25°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.427884		0.473410		1.106398		2.33708		2.11233		0.903834		**40′** 0″
10	7928	44	3469	59	6424	26	3684	24	1207	26	3813	21	50
20	7971	43	3528	59	6449	25	3660	24	1181	26	3792	21	40
30	8015	44	3588	60	6474	25	3637	23	1154	27	3772	20	30
40	8059	44	3647	59	6500	26	3613	24	1128	26	3751	21	20
50	8103	44	3707	60	6525	25	3589	24	1101	27	3730	21	10
21 0	0.428147	44	0.473766	59	1.106551	26	2.33565	24	2.11075	26	0.903709	21	**39** 0
10	8190	43	3825	59	6576	25	3541	24	1048	27	3689	20	50
20	8234	44	3885	60	6601	25	3517	24	1022	26	3668	21	40
30	8278	44	3944	59	6627	26	3493	24	0995	27	3647	21	30
40	8322	44	4003	59	6652	25	3469	24	0969	26	3626	21	20
50	8366	44	4063	60	6678	26	3445	24	0943	26	3605	21	10
22 0	0.428410	44	0.474122	59	1.106703	25	2.33422	23	2.10916	27	0.903585	20	**38** 0
10	8453	43	4182	60	6729	26	3398	24	0890	26	3564	21	50
20	8497	44	4241	59	6754	25	3374	24	0863	27	3543	21	40
30	8541	44	4300	59	6779	25	3350	24	0837	26	3522	21	30
40	8585	44	4360	60	6805	26	3326	24	0810	27	3502	20	20
50	8629	44	4419	59	6830	25	3302	24	0784	26	3481	21	10
23 0	0.428672	43	0.474478	59	1.106856	26	2.33278	24	2.10758	26	0.903460	21	**37** 0
10	8716	44	4538	60	6881	25	3255	23	0731	27	3439	21	50
20	8760	44	4597	59	6907	26	3231	24	0705	26	3418	21	40
30	8804	44	4657	60	6932	25	3207	24	0679	26	3398	20	30
40	8848	44	4716	59	6958	26	3183	24	0652	27	3377	21	20
50	8891	43	4776	60	6983	25	3159	24	0626	26	3356	21	10
24 0	0.428935	44	0.474835	59	1.107009	26	2.33135	24	2.10600	26	0.903335	21	**36** 0
10	8979	44	4894	59	7034	25	3112	23	0573	27	3314	21	50
20	9023	44	4954	60	7060	26	3088	24	0547	26	3294	20	40
30	9067	44	5013	59	7085	25	3064	24	0520	27	3273	21	30
40	9110	43	5073	60	7111	26	3040	24	0494	26	3252	21	20
50	9154	44	5132	59	7136	25	3017	23	0468	26	3231	21	10
25 0	0.429198	44	0.475191	59	1.107162	26	2.32993	24	2.10442	26	0.903210	21	**35** 0
10	9242	44	5251	60	7187	25	2969	24	0415	27	3190	20	50
20	9285	43	5310	59	7213	26	2945	24	0389	26	3169	21	40
30	9329	44	5370	60	7238	25	2921	24	0363	26	3148	21	30
40	9373	44	5429	59	7264	26	2898	23	0336	27	3127	21	20
50	9417	44	5489	60	7289	25	2874	24	0310	26	3106	21	10
26 0	0.429461	44	0.475548	59	1.107315	26	2.32850	24	2.10284	26	0.903086	20	**34** 0
10	9504	43	5608	60	7340	25	2826	24	0257	27	3065	21	50
20	9548	44	5667	59	7366	26	2803	23	0231	26	3044	21	40
30	9592	44	5726	59	7391	25	2779	24	0205	26	3023	21	30
40	9636	44	5786	60	7417	26	2755	24	0179	26	3002	21	20
50	9680	44	5845	59	7442	25	2732	23	0152	27	2981	21	10
27 0	0.429723	43	0.475905	60	1.107468	26	2.32708	24	2.10126	26	0.902961	20	**33** 0
10	9767	44	5964	59	7494	26	2684	24	0100	26	2940	21	50
20	9811	44	6024	60	7519	25	2660	24	0074	26	2919	21	40
30	9855	44	6083	59	7545	26	2637	23	0047	27	2898	21	30
40	9898	43	6143	60	7570	25	2613	24	2.10021	26	2877	21	20
50	9942	44	6202	59	7596	26	2589	24	2.09995	26	2856	21	10
28 0	0.429986	44	0.476262	60	1.107621	25	2.32566	23	2.09969	26	0.902836	20	**32** 0
10	0.430030	44	6321	59	7647	26	2542	24	9942	27	2815	21	50
20	0073	43	6381	60	7673	26	2518	24	9916	26	2794	21	40
30	0117	44	6440	59	7698	25	2495	23	9890	26	2773	21	30
40	0161	44	6500	60	7724	26	2471	24	9864	26	2752	21	20
50	0205	44	6559	59	7749	25	2447	24	9838	26	2731	21	10
29 0	0.430249	44	0.476619	60	1.107775	26	2.32424	23	2.09811	27	0.902710	21	**31** 0
10	0292	43	6678	59	7800	25	2400	24	9785	26	2690	20	50
20	0336	44	6738	60	7826	26	2377	23	9759	26	2669	21	40
30	0380	44	6797	59	7852	26	2353	24	9733	26	2648	21	30
40	0424	44	6857	60	7877	25	2329	24	9707	26	2627	21	20
50	0467	43	6916	59	7903	26	2306	23	9681	26	2606	21	10
30 0	0.430511	44	0.476976	60	1.107929	26	2.32282	24	2.09654	27	0.902585	21	**30** 0
	cos		cotg		cosec		sec		tang		sin		

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9	18.0

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3	6.9
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6	13.8
7	16.1
8	18.4
9	20.7

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2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

26	
1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

59	
1	5.9
2	11.8
3	17.7
4	23.6
5	29.5
6	35.4
7	41.3
8	47.2
9	53.1

64°

25°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.430511		0.476976		1.107929		2.32282		2.09654		0.902585		**30′** 0″
10	0555	44	7035	59	7954	25	2258	24	9628	26	2564	21	50
20	0599	44	7095	60	7980	26	2235	23	9602	26	2544	20	40
30	0642	43	7154	59	8005	25	2211	24	9576	26	2523	21	30
40	0686	44	7214	60	8031	26	2188	23	9550	26	2502	21	20
50	0730	44	7273	59	8057	26	2164	24	9524	26	2481	21	10
31 0	0.430774	44	0.477333	60	1.108082	25	2.32140	24	2.09498	26	0.902460	21	**29** 0
10	0817	43	7392	59	8108	26	2117	23	9471	27	2439	21	50
20	0861	44	7452	60	8134	26	2093	24	9445	26	2418	21	40
30	0905	44	7511	59	8159	25	2070	23	9419	26	2397	21	30
40	0949	44	7571	60	8185	26	2046	24	9393	26	2376	21	20
50	0992	43	7630	59	8211	26	2023	23	9367	26	2356	20	10
32 0	0.431036	44	0.477690	60	1.108236	25	2.31999	24	2.09341	26	0.902335	21	**28** 0
10	1080	44	7749	59	8262	26	1976	23	9315	26	2314	21	50
20	1124	44	7809	60	8288	26	1952	24	9289	26	2293	21	40
30	1167	43	7869	60	8313	25	1929	23	9263	26	2272	21	30
40	1211	44	7928	59	8339	26	1905	24	9237	26	2251	21	20
50	1255	44	7988	60	8365	26	1881	24	9210	27	2230	21	10
33 0	0.431299	44	0.478047	59	1.108390	25	2.31858	23	2.09184	26	0.902209	21	**27** 0
10	1342	43	8107	60	8416	26	1834	24	9158	26	2188	21	50
20	1386	44	8166	59	8442	26	1811	23	9132	26	2167	21	40
30	1430	44	8226	60	8467	25	1787	24	9106	26	2147	20	30
40	1474	44	8285	59	8493	26	1764	23	9080	26	2126	21	20
50	1517	43	8345	60	8519	26	1740	24	9054	26	2105	21	10
34 0	0.431561	44	0.478405	60	1.108545	26	2.31717	23	2.09028	26	0.902084	21	**26** 0
10	1605	44	8464	59	8570	25	1693	24	9002	26	2063	21	50
20	1648	43	8524	60	8596	26	1670	23	8976	26	2042	21	40
30	1692	44	8583	59	8622	26	1647	23	8950	26	2021	21	30
40	1736	44	8643	60	8647	25	1623	24	8924	26	2000	21	20
50	1780	44	8703	60	8673	26	1600	23	8898	26	1979	21	10
35 0	0.431823	43	0.478762	59	1.108699	26	2.31576	24	2.08872	26	0.901958	21	**25** 0
10	1867	44	8822	60	8725	26	1553	23	8846	26	1937	21	50
20	1911	44	8881	59	8750	25	1529	24	8820	26	1916	21	40
30	1955	44	8941	60	8776	26	1506	23	8794	26	1895	21	30
40	1998	43	9001	60	8802	26	1482	24	8768	26	1874	21	20
50	2042	44	9060	59	8828	26	1459	23	8742	26	1853	21	10
36 0	0.432086	44	0.479120	60	1.108853	25	2.31436	23	2.08716	26	0.901833	20	**24** 0
10	2129	43	9179	59	8879	26	1412	24	8690	26	1812	21	50
20	2173	44	9239	60	8905	26	1389	23	8664	26	1791	21	40
30	2217	44	9299	60	8931	26	1365	24	8638	26	1770	21	30
40	2261	44	9358	59	8956	25	1342	23	8612	26	1749	21	20
50	2304	43	9418	60	8982	26	1319	23	8586	26	1728	21	10
37 0	0.432348	44	0.479477	59	1.109008	26	2.31295	24	2.08560	26	0.901707	21	**23** 0
10	2392	44	9537	60	9034	26	1272	23	8534	26	1686	21	50
20	2435	43	9597	60	9060	26	1248	24	8509	25	1665	21	40
30	2479	44	9656	59	9085	25	1225	23	8483	26	1644	21	30
40	2523	44	9716	60	9111	26	1202	23	8457	26	1623	21	20
50	2567	44	9776	60	9137	26	1178	24	8431	26	1602	21	10
38 0	0.432610	43	0.479835	59	1.109163	26	2.31155	23	2.08405	26	0.901581	21	**22** 0
10	2654	44	9895	60	9188	25	1132	23	8379	26	1560	21	50
20	2698	44	0.479955	60	9214	26	1108	24	8353	26	1539	21	40
30	2741	43	0.480014	59	9240	26	1085	23	8327	26	1518	21	30
40	2785	44	0074	60	9266	26	1062	23	8301	26	1497	21	20
50	2829	44	0134	60	9292	26	1038	24	8275	26	1476	21	10
39 0	0.432873	44	0.480193	59	1.109318	26	2.31015	23	2.08250	25	0.901455	21	**21** 0
10	2916	43	0253	60	9343	25	0992	23	8224	26	1434	21	50
20	2960	44	0312	59	9369	26	0968	24	8198	26	1413	21	40
30	3004	44	0372	60	9395	26	0945	23	8172	26	1392	21	30
40	3047	43	0432	60	9421	26	0922	23	8146	26	1371	21	20
50	3091	44	0491	59	9447	26	0898	24	8120	26	1350	21	10
40 0	0.433135	44	0.480551	60	1.109473	26	2.30875	23	2.08094	26	0.901329	21	**20** 0
	cos		cotg		cosec		sec		tang		sin		

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9	24.3

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8	48.0
9	54.0

64°

25°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.433135		0.480551		1.109473		2.30875		2.08094		0.901329		**20′** 0″
10	3178	43	0611	60	9498	25	0852	23	8069	25	1308	21	50
20	3222	44	0671	60	9524	26	0828	24	8043	26	1287	21	40
30	3266	44	0730	59	9550	26	0805	23	8017	26	1266	21	30
40	3310	44	0790	60	9576	26	0782	23	7991	26	1245	21	20
50	3353	43	0850	60	9602	26	0759	23	7965	26	1224	21	10
41 0	0.433397	44	0.480909	59	1.109628	26	2.30735	24	2.07939	26	0.901203	21	**19** 0
10	3441	44	0969	60	9654	26	0712	23	7914	25	1182	21	50
20	3484	43	1029	60	9679	25	0689	23	7888	26	1161	21	40
30	3528	44	1088	59	9705	26	0666	23	7862	26	1140	21	30
40	3572	44	1148	60	9731	26	0642	24	7836	26	1119	21	20
50	3615	43	1208	60	9757	26	0619	23	7810	26	1098	21	10
42 0	0.433659	44	0.481267	59	1.109783	26	2.30596	23	2.07785	25	0.901077	21	**18** 0
10	3703	44	1327	60	9809	26	0573	23	7759	26	1056	21	50
20	3746	43	1387	60	9835	26	0549	24	7733	26	1035	21	40
30	3790	44	1447	60	9861	26	0526	23	7707	26	1014	21	30
40	3834	44	1506	59	9887	26	0503	23	7682	25	0993	21	20
50	3877	43	1566	60	9913	26	0480	23	7656	26	0972	21	10
43 0	0.433921	44	0.481626	60	1.109938	25	2.30457	23	2.07630	26	0.900951	21	**17** 0
10	3965	44	1686	60	9964	26	0433	24	7604	26	0930	21	50
20	4009	44	1745	59	1.109990	26	0410	23	7579	25	0909	21	40
30	4052	43	1805	60	1.110016	26	0387	23	7553	26	0888	21	30
40	4096	44	1865	60	0042	26	0364	23	7527	26	0867	21	20
50	4140	44	1924	59	0068	26	0341	23	7501	26	0846	21	10
44 0	0.434183	43	0.481984	60	1.110094	26	2.30318	23	2.07476	25	0.900825	21	**16** 0
10	4227	44	2044	60	0120	26	0294	24	7450	26	0804	21	50
20	4271	44	2104	60	0146	26	0271	23	7424	26	0782	22	40
30	4314	43	2163	59	0172	26	0248	23	7399	25	0761	21	30
40	4358	44	2223	60	0198	26	0225	23	7373	26	0740	21	20
50	4402	44	2283	60	0224	26	0202	23	7347	26	0719	21	10
45 0	0.434445	43	0.482343	60	1.110250	26	2.30179	23	2.07321	26	0.900698	21	**15** 0
10	4489	44	2403	60	0276	26	0155	24	7296	25	0677	21	50
20	4533	44	2462	59	0302	26	0132	23	7270	26	0656	21	40
30	4576	43	2522	60	0328	26	0109	23	7244	26	0635	21	30
40	4620	44	2582	60	0354	26	0086	23	7219	25	0614	21	20
50	4664	44	2642	60	0380	26	0063	23	7193	26	0593	21	10
46 0	0.434707	43	0.482701	59	1.110406	26	2.30040	23	2.07167	26	0.900572	21	**14** 0
10	4751	44	2761	60	0432	26	2.30017	23	7142	25	0551	21	50
20	4795	44	2821	60	0458	26	2.29994	23	7116	26	0530	21	40
30	4838	43	2881	60	0484	26	9971	23	7090	26	0509	21	30
40	4882	44	2940	59	0510	26	9947	24	7065	25	0488	21	20
50	4926	44	3000	60	0536	26	9924	23	7039	26	0466	22	10
47 0	0.434969	43	0.483060	60	1.110562	26	2.29901	23	2.07014	25	0.900445	21	**13** 0
10	5013	44	3120	60	0588	26	9878	23	6988	26	0424	21	50
20	5056	43	3180	60	0614	26	9855	23	6962	26	0403	21	40
30	5100	44	3239	59	0640	26	9832	23	6937	25	0382	21	30
40	5144	44	3299	60	0666	26	9809	23	6911	26	0361	21	20
50	5187	43	3359	60	0692	26	9786	23	6886	25	0340	21	10
48 0	0.435231	44	0.483419	60	1.110718	26	2.29763	23	2.06860	26	0.900319	21	**12** 0
10	5275	44	3479	60	0744	26	9740	23	6834	26	0298	21	50
20	5318	43	3539	60	0770	26	9717	23	6809	25	0277	21	40
30	5362	44	3598	59	0796	26	9694	23	6783	26	0255	22	30
40	5406	44	3658	60	0822	26	9671	23	6758	25	0234	21	20
50	5449	43	3718	60	0848	26	9648	23	6732	26	0213	21	10
49 0	0.435493	44	0.483778	60	1.110874	26	2.29625	23	2.06706	26	0.900192	21	**11** 0
10	5537	44	3838	60	0900	26	9602	23	6681	25	0171	21	50
20	5580	43	3897	59	0926	26	9579	23	6655	26	0150	21	40
30	5624	44	3957	60	0952	26	9556	23	6630	25	0129	21	30
40	5668	44	4017	60	0978	26	9533	23	6604	26	0108	21	20
50	5711	43	4077	60	1004	26	9510	23	6579	25	0087	21	10
50 0	0.435755	44	0.484137	60	1.111030	26	2.29487	23	2.06553	26	0.900065	22	**10** 0
	cos		cotg		cosec		sec		tang		sin		

21	
1	2.1
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23	
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7	16.1
8	18.4
9	20.7

25	
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8	20.0
9	22.5

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5	13.0
6	15.6
7	18.2
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2	8.6
3	12.9
4	17.2
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6	25.8
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8	34.4
9	38.7

59	
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2	11.8
3	17.7
4	23.6
5	29.5
6	35.4
7	41.3
8	47.2
9	53.1

64°

25°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.435755		0.484137		1.111030		2.29487		2.06553		0.900065		**10′** 0″
10	5798	43	4197	60	1056	26	9464	23	6528	25	0044	21	50
20	5842	44	4257	60	1083	27	9441	23	6502	26	0023	21	40
30	5886	44	4316	59	1109	26	9418	23	6477	25	0.900002	21	30
40	5929	43	4376	60	1135	26	9395	23	6451	26	0.899981	21	20
50	5973	44	4436	60	1161	26	9372	23	6426	25	9960	21	10
51 0	0.436017	44	0.484496	60	1.111187	26	2.29349	23	2.06400	26	0.899939	21	**9** 0
10	6060	43	4556	60	1213	26	9326	23	6375	25	9917	22	50
20	6104	44	4616	60	1239	26	9303	23	6349	26	9896	21	40
30	6147	43	4676	60	1265	26	9280	23	6324	25	9875	21	30
40	6191	44	4735	59	1291	26	9257	23	6298	26	9854	21	20
50	6235	44	4795	60	1317	26	9234	23	6273	25	9833	21	10
52 0	0.436278	43	0.484855	60	1.111344	27	2.29211	23	2.06247	26	0.899812	21	**8** 0
10	6322	44	4915	60	1370	26	9189	22	6222	25	9791	21	50
20	6366	44	4975	60	1396	26	9166	23	6196	26	9769	22	40
30	6409	43	5035	60	1422	26	9143	23	6171	25	9748	21	30
40	6453	44	5095	60	1448	26	9120	23	6145	26	9727	21	20
50	6496	43	5155	60	1474	26	9097	23	6120	25	9706	21	10
53 0	0.436540	44	0.485214	59	1.111500	26	2.29074	23	2.06094	26	0.899685	21	**7** 0
10	6584	44	5274	60	1527	27	9051	23	6069	25	9664	21	50
20	6627	43	5334	60	1553	26	9028	23	6044	25	9642	22	40
30	6671	44	5394	60	1579	26	9005	23	6018	26	9621	21	30
40	6715	44	5454	60	1605	26	8983	22	5993	25	9600	21	20
50	6758	43	5514	60	1631	26	8960	23	5967	26	9579	21	10
54 0	0.436802	44	0.485574	60	1.111657	26	2.28937	23	2.05942	25	0.899558	21	**6** 0
10	6845	43	5634	60	1684	27	8914	23	5916	26	9537	21	50
20	6889	44	5694	60	1710	26	8891	23	5891	25	9515	22	40
30	6933	44	5754	60	1736	26	8868	23	5866	25	9494	21	30
40	6976	43	5814	60	1762	26	8845	23	5840	26	9473	21	20
50	7020	44	5874	60	1788	26	8823	22	5815	25	9452	21	10
55 0	0.437063	43	0.485933	59	1.111814	26	2.28800	23	2.05790	25	0.899431	21	**5** 0
10	7107	44	5993	60	1841	27	8777	23	5764	26	9409	22	50
20	7151	44	6053	60	1867	26	8754	23	5739	25	9388	21	40
30	7194	43	6113	60	1893	26	8731	23	5713	26	9367	21	30
40	7238	44	6173	60	1919	26	8708	23	5688	25	9346	21	20
50	7281	43	6233	60	1945	26	8686	22	5663	25	9325	21	10
56 0	0.437325	44	0.486293	60	1.111972	27	2.28663	23	2.05637	26	0.899304	21	**4** 0
10	7369	44	6353	60	1998	26	8640	23	5612	25	9282	22	50
20	7412	43	6413	60	2024	26	8617	23	5587	25	9261	21	40
30	7456	44	6473	60	2050	26	8594	23	5561	26	9240	21	30
40	7499	43	6533	60	2077	27	8572	22	5536	25	9219	21	20
50	7543	44	6593	60	2103	26	8549	23	5511	25	9197	22	10
57 0	0.437587	44	0.486653	60	1.112129	26	2.28526	23	2.05485	26	0.899176	21	**3** 0
10	7630	43	6713	60	2155	26	8503	23	5460	25	9155	21	50
20	7674	44	6773	60	2181	26	8481	22	5435	25	9134	21	40
30	7717	43	6833	60	2208	27	8458	23	5409	26	9113	21	30
40	7761	44	6893	60	2234	26	8435	23	5384	25	9091	22	20
50	7805	44	6953	60	2260	26	8412	23	5359	25	9070	21	10
58 0	0.437848	43	0.487013	60	1.112287	27	2.28390	22	2.05333	26	0.899049	21	**2** 0
10	7892	44	7073	60	2313	26	8367	23	5308	25	9028	21	50
20	7935	43	7133	60	2339	26	8344	23	5283	25	9006	22	40
30	7979	44	7193	60	2365	26	8321	23	5258	25	8985	21	30
40	8023	44	7253	60	2392	27	8299	22	5232	26	8964	21	20
50	8066	43	7313	60	2418	26	8276	23	5207	25	8943	21	10
59 0	0.438110	44	0.487373	60	1.112444	26	2.28253	23	2.05182	25	0.898922	21	**1** 0
10	8153	43	7433	60	2470	26	8231	22	5157	25	8900	22	50
20	8197	44	7493	60	2497	27	8208	23	5131	26	8879	21	40
30	8240	43	7553	60	2523	26	8185	23	5106	25	8858	21	30
40	8284	44	7613	60	2549	26	8163	22	5081	25	8837	21	20
50	8328	44	7673	60	2576	27	8140	23	5056	25	8815	22	10
60 0	0.438371	43	0.487733	60	1.112602	26	2.28117	23	2.05030	26	0.898794	21	**0** 0
	cos		cotg		cosec		sec		tang		sin		

22	
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8	17.6
9	19.8

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8	19.2
9	21.6

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5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

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6	16.2
7	18.9
8	21.6
9	24.3

44	
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2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

60	
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3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

64°

26°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.438371		0.487733		1.112602		2.28117		2.05030		0.898794		**60′** 0″
10	8415	44	7793	60	2628	26	8095	22	5005	25	8773	21	50
20	8458	43	7853	60	2655	27	8072	23	4980	25	8752	21	40
30	8502	44	7913	60	2681	26	8049	23	4955	25	8730	22	30
40	8545	43	7973	60	2707	26	8027	22	4930	25	8709	21	20
50	8589	44	8033	60	2734	27	8004	23	4904	26	8688	21	10
1 0	0.438633	44	0.488093	60	1.112760	26	2.27981	23	2.04879	25	0.898666	22	**59** 0
10	8676	43	8153	60	2786	26	7959	22	4854	25	8645	21	50
20	8720	44	8213	60	2813	27	7936	23	4829	25	8624	21	40
30	8763	43	8273	60	2839	26	7913	23	4804	25	8603	21	30
40	8807	44	8333	60	2865	26	7891	22	4778	26	8581	22	20
50	8850	43	8393	60	2892	27	7868	23	4753	25	8560	21	10
2 0	0.438894	44	0.488453	60	1.112918	26	2.27845	23	2.04728	25	0.898539	21	**58** 0
10	8938	44	8513	60	2944	26	7823	22	4703	25	8518	21	50
20	8981	43	8573	60	2971	27	7800	23	4678	25	8496	22	40
30	9025	44	8633	60	2997	26	7778	22	4653	25	8475	21	30
40	9068	43	8693	60	3023	26	7755	23	4627	26	8454	21	20
50	9112	44	8753	60	3050	27	7732	23	4602	25	8432	22	10
3 0	0.439155	43	0.488813	60	1.113076	26	2.27710	22	2.04577	25	0.898411	21	**57** 0
10	9199	44	8873	60	3102	26	7687	23	4552	25	8390	21	50
20	9242	43	8933	60	3129	27	7665	22	4527	25	8369	21	40
30	9286	44	8994	61	3155	26	7642	23	4502	25	8347	22	30
40	9330	44	9054	60	3182	27	7620	22	4477	25	8326	21	20
50	9373	43	9114	60	3208	26	7597	23	4451	26	8305	21	10
4 0	0.439417	44	0.489174	60	1.113234	26	2.27574	23	2.04426	25	0.898283	22	**56** 0
10	9460	43	9234	60	3261	27	7552	22	4401	25	8262	21	50
20	9504	44	9294	60	3287	26	7529	23	4376	25	8241	21	40
30	9547	43	9354	60	3314	27	7507	22	4351	25	8219	22	30
40	9591	44	9414	60	3340	26	7484	23	4326	25	8198	21	20
50	9634	43	9474	60	3367	27	7462	22	4301	25	8177	21	10
5 0	0.439678	44	0.489534	60	1.113393	26	2.27439	23	2.04276	25	0.898156	21	**55** 0
10	9721	43	9594	60	3419	26	7417	22	4251	25	8134	22	50
20	9765	44	9655	61	3446	27	7394	23	4226	25	8113	21	40
30	9809	44	9715	60	3472	26	7372	22	4201	25	8092	21	30
40	9852	43	9775	60	3499	27	7349	23	4176	25	8070	22	20
50	9896	44	9835	60	3525	26	7327	22	4150	26	8049	21	10
6 0	0.439939	43	0.489895	60	1.113552	27	2.27304	23	2.04125	25	0.898028	21	**54** 0
10	0.439983	44	0.489955	60	3578	26	7282	22	4100	25	8006	22	50
20	0.440026	43	0.490015	60	3604	26	7259	23	4075	25	7985	21	40
30	0070	44	0075	60	3631	27	7237	22	4050	25	7964	21	30
40	0113	43	0135	60	3657	26	7214	23	4025	25	7942	22	20
50	0157	44	0196	61	3684	27	7192	22	4000	25	7921	21	10
7 0	0.440200	43	0.490256	60	1.113710	26	2.27169	23	2.03975	25	0.897900	21	**53** 0
10	0244	44	0316	60	3737	27	7147	22	3950	25	7878	22	50
20	0287	43	0376	60	3763	26	7124	23	3925	25	7857	21	40
30	0331	44	0436	60	3790	27	7102	22	3900	25	7836	21	30
40	0374	43	0496	60	3816	26	7079	23	3875	25	7814	22	20
50	0418	44	0556	60	3843	27	7057	22	3850	25	7793	21	10
8 0	0.440462	44	0.490617	61	1.113869	26	2.27035	22	2.03825	25	0.897771	22	**52** 0
10	0505	43	0677	60	3896	27	7012	23	3800	25	7750	21	50
20	0549	44	0737	60	3922	26	6990	22	3775	25	7729	21	40
30	0592	43	0797	60	3949	27	6967	23	3750	25	7707	22	30
40	0636	44	0857	60	3975	26	6945	22	3725	25	7686	21	20
50	0679	43	0917	60	4002	27	6922	23	3700	25	7665	21	10
9 0	0.440723	44	0.490978	61	1.114028	26	2.26900	22	2.03675	25	0.897643	22	**51** 0
10	0766	43	1038	60	4055	27	6878	22	3650	25	7622	21	50
20	0810	44	1098	60	4081	26	6855	23	3625	25	7601	21	40
30	0853	43	1158	60	4108	27	6833	22	3600	25	7579	22	30
40	0897	44	1218	60	4134	26	6810	23	3576	24	7558	21	20
50	0940	43	1278	60	4161	27	6788	22	3551	25	7536	22	10
10 0	0.440984	44	0.491339	61	1.114187	26	2.26766	22	2.03526	25	0.897515	21	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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23	
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3	6.9
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7	16.1
8	18.4
9	20.7

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3	7.5
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9	22.5

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9	23.4

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8	34.4
9	38.7

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9	54.0

63°

26°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.440984		0.491339		1.114187		2.26766		2.03526		0.897515		**50′** 0″
10	1027	43	1399	60	4214	27	6743	23	3501	25	7494	21	50
20	1071	44	1459	60	4241	27	6721	22	3476	25	7472	22	40
30	1114	43	1519	60	4267	26	6699	22	3451	25	7451	21	30
40	1158	44	1579	60	4294	27	6676	23	3426	25	7430	21	20
50	1201	43	1640	61	4320	26	6654	22	3401	25	7408	22	10
11 0	0.441245	44	0.491700	60	1.114347	27	2.26632	22	2.03376	25	0.897387	21	**49** 0
10	1288	43	1760	60	4373	26	6609	23	3351	25	7365	22	50
20	1332	44	1820	60	4400	27	6587	22	3326	25	7344	21	40
30	1375	43	1880	60	4426	26	6565	22	3301	25	7323	21	30
40	1419	44	1941	61	4453	27	6542	23	3277	24	7301	22	20
50	1462	43	2001	60	4480	27	6520	22	3252	25	7280	21	10
12 0	0.441506	44	0.492061	60	1.114506	26	2.26498	22	2.03227	25	0.897258	22	**48** 0
10	1549	43	2121	60	4533	27	6475	23	3202	25	7237	21	50
20	1593	44	2181	61	4559	26	6453	22	3177	25	7216	21	40
30	1636	43	2242	60	4586	27	6431	22	3152	25	7194	22	30
40	1680	44	2302	60	4613	27	6408	23	3127	25	7173	21	20
50	1723	43	2362	60	4639	26	6386	22	3103	24	7151	22	10
13 0	0.441767	44	0.492422	60	1.114666	27	2.26364	22	2.03078	25	0.897130	21	**47** 0
10	1810	43	2483	61	4692	26	6341	23	3053	25	7108	22	50
20	1854	44	2543	60	4719	27	6319	22	3028	25	7087	21	40
30	1897	43	2603	60	4746	27	6297	22	3003	25	7066	21	30
40	1941	44	2663	60	4772	26	6275	22	2978	25	7044	22	20
50	1984	43	2724	61	4799	27	6252	23	2954	24	7023	21	10
14 0	0.442028	44	0.492784	60	1.114826	27	2.26230	22	2.02929	25	0.897001	22	**46** 0
10	2071	43	2844	60	4852	26	6208	22	2904	25	6980	21	50
20	2115	44	2904	60	4879	27	6186	22	2879	25	6958	22	40
30	2158	43	2965	61	4905	26	6163	23	2854	25	6937	21	30
40	2202	44	3025	60	4932	27	6141	22	2830	24	6916	21	20
50	2245	43	3085	60	4959	27	6119	22	2805	25	6894	22	10
15 0	0.442289	44	0.493145	60	1.114985	26	2.26097	22	2.02780	25	0.896873	21	**45** 0
10	2332	43	3206	61	5012	27	6074	23	2755	25	6851	22	50
20	2376	44	3266	60	5039	27	6052	22	2730	25	6830	21	40
30	2419	43	3326	60	5065	26	6030	22	2706	24	6808	22	30
40	2463	44	3387	61	5092	27	6008	22	2681	25	6787	21	20
50	2506	43	3447	60	5119	27	5986	22	2656	25	6766	21	10
16 0	0.442550	44	0.493507	60	1.115145	26	2.25963	23	2.02631	25	0.896744	22	**44** 0
10	2593	43	3567	60	5172	27	5941	22	2607	24	6723	21	50
20	2637	44	3628	61	5199	27	5919	22	2582	25	6701	22	40
30	2680	43	3688	60	5225	26	5897	22	2557	25	6680	21	30
40	2723	43	3748	60	5252	27	5875	22	2532	25	6658	22	20
50	2767	44	3809	61	5279	27	5852	23	2508	24	6637	21	10
17 0	0.442810	43	0.493869	60	1.115306	27	2.25830	22	2.02483	25	0.896615	22	**43** 0
10	2854	44	3929	60	5332	26	5808	22	2458	25	6594	21	50
20	2897	43	3990	61	5359	27	5786	22	2433	25	6572	22	40
30	2941	44	4050	60	5386	27	5764	22	2409	24	6551	21	30
40	2984	43	4110	60	5412	26	5742	22	2384	25	6529	22	20
50	3028	44	4170	60	5439	27	5720	22	2359	25	6508	21	10
18 0	0.443071	43	0.494231	61	1.115466	27	2.25697	23	2.02335	24	0.896486	22	**42** 0
10	3115	44	4291	60	5493	27	5675	22	2310	25	6465	21	50
20	3158	43	4351	60	5519	26	5653	22	2285	25	6443	22	40
30	3202	44	4412	61	5546	27	5631	22	2261	24	6422	21	30
40	3245	43	4472	60	5573	27	5609	22	2236	25	6400	22	20
50	3288	43	4532	60	5600	27	5587	22	2211	25	6379	21	10
19 0	0.443332	44	0.494593	61	1.115626	26	2.25565	22	2.02187	24	0.896358	21	**41** 0
10	3375	43	4653	60	5653	27	5543	22	2162	25	6336	22	50
20	3419	44	4713	60	5680	27	5520	23	2137	25	6315	21	40
30	3462	43	4774	61	5707	27	5498	22	2113	24	6293	22	30
40	3506	44	4834	60	5733	26	5476	22	2088	25	6272	21	20
50	3549	43	4895	61	5760	27	5454	22	2063	25	6250	22	10
20 0	0.443593	44	0.494955	60	1.115787	27	2.25432	22	2.02039	24	0.896229	21	**40** 0
	cos		cotg		cosec		sec		tang		sin		

22

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9	19.8

24

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9	21.6

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9	22.5

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9	24.3

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61

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9	54.9

63°

26°

	sin		tang		sec		cosec		cotg		cos		
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10	3636	43	5015	60	5814	27	5410	22	2014	25	6207	22	50
20	3680	44	5076	61	5840	26	5388	22	1989	25	6185	22	40
30	3723	43	5136	60	5867	27	5366	22	1965	24	6164	21	30
40	3766	43	5196	60	5894	27	5344	22	1940	25	6142	22	20
50	3810	44	5257	61	5921	27	5322	22	1915	25	6121	21	10
21 0	0.443853	43	0.495317	60	1.115948	27	2.25300	22	2.01891	24	0.896099	22	**39** 0
10	3897	44	5377	60	5974	26	5278	22	1866	25	6078	21	50
20	3940	43	5438	61	6001	27	5256	22	1842	24	6056	22	40
30	3984	44	5498	60	6028	27	5234	22	1817	25	6035	21	30
40	4027	43	5559	61	6055	27	5211	23	1792	25	6013	22	20
50	4071	44	5619	60	6082	27	5189	22	1768	24	5992	21	10
22 0	0.444114	43	0.495679	60	1.116108	26	2.25167	22	2.01743	25	0.895970	22	**38** 0
10	4157	43	5740	61	6135	27	5145	22	1719	24	5949	21	50
20	4201	44	5800	60	6162	27	5123	22	1694	25	5927	22	40
30	4244	43	5861	61	6189	27	5101	22	1670	24	5906	21	30
40	4288	44	5921	60	6216	27	5079	22	1645	25	5884	22	20
50	4331	43	5981	60	6243	27	5057	22	1620	25	5863	21	10
23 0	0.444375	44	0.496042	61	1.116269	26	2.25035	22	2.01596	24	0.895841	22	**37** 0
10	4418	43	6102	60	6296	27	5013	22	1571	25	5820	21	50
20	4461	43	6163	61	6323	27	4991	22	1547	24	5798	22	40
30	4505	44	6223	60	6350	27	4969	22	1522	25	5776	22	30
40	4548	43	6283	60	6377	27	4947	22	1498	24	5755	21	20
50	4592	44	6344	61	6404	27	4925	22	1473	25	5733	22	10
24 0	0.444635	43	0.496404	60	1.116431	27	2.24903	22	2.01449	24	0.895712	21	**36** 0
10	4679	44	6465	61	6457	26	4882	21	1424	25	5690	22	50
20	4722	43	6525	60	6484	27	4860	22	1400	24	5669	21	40
30	4765	43	6586	61	6511	27	4838	22	1375	25	5647	22	30
40	4809	44	6646	60	6538	27	4816	22	1351	24	5626	21	20
50	4852	43	6706	60	6565	27	4794	22	1326	25	5604	22	10
25 0	0.444896	44	0.496767	61	1.116592	27	2.24772	22	2.01302	24	0.895582	22	**35** 0
10	4939	43	6827	60	6619	27	4750	22	1277	25	5561	21	50
20	4983	44	6888	61	6646	27	4728	22	1253	24	5539	22	40
30	5026	43	6948	60	6673	27	4706	22	1228	25	5518	21	30
40	5069	43	7009	61	6699	26	4684	22	1204	24	5496	22	20
50	5113	44	7069	60	6726	27	4662	22	1179	25	5475	21	10
26 0	0.445156	43	0.497130	61	1.116753	27	2.24640	22	2.01155	24	0.895453	22	**34** 0
10	5200	44	7190	60	6780	27	4618	22	1130	25	5431	22	50
20	5243	43	7251	61	6807	27	4596	22	1106	24	5410	21	40
30	5286	43	7311	60	6834	27	4575	21	1081	25	5388	22	30
40	5330	44	7372	61	6861	27	4553	22	1057	24	5367	21	20
50	5373	43	7432	60	6888	27	4531	22	1032	25	5345	22	10
27 0	0.445417	44	0.497492	60	1.116915	27	2.24509	22	2.01008	24	0.895323	22	**33** 0
10	5460	43	7553	61	6942	27	4487	22	0984	24	5302	21	50
20	5503	43	7613	60	6969	27	4465	22	0959	25	5280	22	40
30	5547	44	7674	61	6996	27	4443	22	0935	24	5259	21	30
40	5590	43	7734	60	7023	27	4421	22	0910	25	5237	22	20
50	5634	44	7795	61	7050	27	4400	21	0886	24	5215	22	10
28 0	0.445677	43	0.497855	60	1.117077	27	2.24378	22	2.00862	24	0.895194	21	**32** 0
10	5720	43	7916	61	7104	27	4356	22	0837	25	5172	22	50
20	5764	44	7976	60	7130	26	4334	22	0813	24	5151	21	40
30	5807	43	8037	61	7157	27	4312	22	0788	25	5129	22	30
40	5851	44	8097	60	7184	27	4290	22	0764	24	5107	22	20
50	5894	43	8158	61	7211	27	4269	21	0740	24	5086	21	10
29 0	0.445937	43	0.498218	60	1.117238	27	2.24247	22	2.00715	25	0.895064	22	**31** 0
10	5981	44	8279	61	7265	27	4225	22	0691	24	5042	22	50
20	6024	43	8339	60	7292	27	4203	22	0666	25	5021	21	40
30	6068	44	8400	61	7319	27	4181	22	0642	24	4999	22	30
40	6111	43	8461	61	7346	27	4159	22	0618	24	4978	21	20
50	6154	43	8521	60	7373	27	4138	21	0593	25	4956	22	10
30 0	0.446198	44	0.498582	61	1.117400	27	2.24116	22	2.00569	24	0.894934	22	**30** 0
	cos		cotg		cosec		sec		tang		sin		

21

1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

23

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2	4.6
3	6.9
4	9.2
5	11.5
6	13.8
7	16.1
8	18.4
9	20.7

25

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2	5.0
3	7.5
4	10.0
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6	15.0
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8	20.0
9	22.5

27

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4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

43

1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

60

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2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

63°

26°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.446198		0.498582		1.117400		2.24116		2.00569		0.894934		**30′** 0″
10	6241	43	8642	60	7427	27	4094	22	0545	24	4913	21	50
20	6285	44	8703	61	7454	27	4072	22	0520	25	4891	22	40
30	6328	43	8763	60	7481	27	4050	22	0496	24	4869	22	30
40	6371	43	8824	61	7508	27	4029	21	0472	24	4848	21	20
50	6415	44	8884	60	7535	27	4007	22	0447	25	4826	22	10
31 0	0.446458	43	0.498945	61	1.117563	28	2.23985	22	2.00423	24	0.894805	21	**29** 0
10	6502	44	9005	60	7590	27	3963	22	0399	24	4783	22	50
20	6545	43	9066	61	7617	27	3942	21	0374	25	4761	22	40
30	6588	43	9127	61	7644	27	3920	22	0350	24	4740	21	30
40	6632	44	9187	60	7671	27	3898	22	0326	24	4718	22	20
50	6675	43	9248	61	7698	27	3876	22	0301	25	4696	22	10
32 0	0.446718	43	0.499308	60	1.117725	27	2.23855	21	2.00277	24	0.894675	21	**28** 0
10	6762	44	9369	61	7752	27	3833	22	0253	24	4653	22	50
20	6805	43	9429	60	7779	27	3811	22	0229	24	4631	22	40
30	6849	44	9490	61	7806	27	3789	22	0204	25	4610	21	30
40	6892	43	9551	61	7833	27	3768	21	0180	24	4588	22	20
50	6935	43	9611	60	7860	27	3746	22	0156	24	4566	22	10
33 0	0.446979	44	0.499672	61	1.117887	27	2.23724	22	2.00131	25	0.894545	21	**27** 0
10	7022	43	9732	60	7914	27	3703	21	0107	24	4523	22	50
20	7065	43	9793	61	7941	27	3681	22	0083	24	4501	22	40
30	7109	44	9853	60	7968	27	3659	22	0059	24	4480	21	30
40	7152	43	9914	61	7996	28	3638	21	0034	25	4458	22	20
50	7195	43	0.499975	61	8023	27	3616	22	2.00010	24	4436	22	10
34 0	0.447239	44	0.500035	60	1.118050	27	2.23594	22	1.99986	24	0.894415	21	**26** 0
10	7282	43	0096	61	8077	27	3573	21	9962	24	4393	22	50
20	7326	44	0156	60	8104	27	3551	22	9937	25	4371	22	40
30	7369	43	0217	61	8131	27	3529	22	9913	24	4350	21	30
40	7412	43	0278	61	8158	27	3508	21	9889	24	4328	22	20
50	7456	44	0338	60	8185	27	3486	22	9865	24	4306	22	10
35 0	0.447499	43	0.500399	61	1.118212	27	2.23464	22	1.99841	24	0.894284	22	**25** 0
10	7542	43	0460	61	8240	28	3443	21	9816	25	4263	21	50
20	7586	44	0520	60	8267	27	3421	22	9792	24	4241	22	40
30	7629	43	0581	61	8294	27	3399	22	9768	24	4219	22	30
40	7672	43	0641	60	8321	27	3378	21	9744	24	4198	21	20
50	7716	44	0702	61	8348	27	3356	22	9720	24	4176	22	10
36 0	0.447759	43	0.500763	61	1.118375	27	2.23334	22	1.99695	25	0.894154	22	**24** 0
10	7802	43	0823	60	8402	27	3313	21	9671	24	4133	21	50
20	7846	44	0884	61	8430	28	3291	22	9647	24	4111	22	40
30	7889	43	0945	61	8457	27	3270	21	9623	24	4089	22	30
40	7932	43	1005	60	8484	27	3248	22	9599	24	4067	22	20
50	7976	44	1066	61	8511	27	3226	22	9575	24	4046	21	10
37 0	0.448019	43	0.501127	61	1.118538	27	2.23205	21	1.99550	25	0.894024	22	**23** 0
10	8063	44	1187	60	8565	27	3183	22	9526	24	4002	22	50
20	8106	43	1248	61	8593	28	3162	21	9502	24	3981	21	40
30	8149	43	1309	61	8620	27	3140	22	9478	24	3959	22	30
40	8193	44	1369	60	8647	27	3118	22	9454	24	3937	22	20
50	8236	43	1430	61	8674	27	3097	21	9430	24	3915	22	10
38 0	0.448279	43	0.501491	61	1.118701	27	2.23075	22	1.99406	24	0.893894	21	**22** 0
10	8323	44	1551	60	8729	28	3054	21	9381	25	3872	22	50
20	8366	43	1612	61	8756	27	3032	22	9357	24	3850	22	40
30	8409	43	1673	61	8783	27	3011	21	9333	24	3828	22	30
40	8453	44	1733	60	8810	27	2989	22	9309	24	3807	21	20
50	8496	43	1794	61	8837	27	2967	22	9285	24	3785	22	10
39 0	0.448539	43	0.501855	61	1.118865	28	2.22946	21	1.99261	24	0.893763	22	**21** 0
10	8583	44	1915	60	8892	27	2924	22	9237	24	3741	22	50
20	8626	43	1976	61	8919	27	2903	21	9213	24	3720	21	40
30	8669	43	2037	61	8946	27	2881	22	9189	24	3698	22	30
40	8713	44	2097	60	8974	28	2860	21	9165	24	3676	22	20
50	8756	43	2158	61	9001	27	2838	22	9140	25	3654	22	10
40 0	0.448799	43	0.502219	61	1.119028	27	2.22817	21	1.99116	24	0.893633	21	**20** 0
	cos		cotg		cosec		sec		tang		sin		

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9	23.4

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9	25.2

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6	26.4
7	30.8
8	35.2
9	39.6

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6	36.6
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8	48.8
9	54.9

63°

26°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.448799		0.502219		1.119028		2.22817		1.99116		0.893633		**20′** 0″
10	8843	44	2280	61	9055	27	2795	22	9092	24	3611	22	50
20	8886	43	2340	60	9083	28	2774	21	9068	24	3589	22	40
30	8929	43	2401	61	9110	27	2752	22	9044	24	3567	22	30
40	8972	43	2462	61	9137	27	2731	21	9020	24	3546	21	20
50	9016	44	2522	60	9164	27	2709	22	8996	24	3524	22	10
41 0	0.449059	43	0.502583	61	1.119192	28	2.22688	21	1.98972	24	0.893502	22	**19** 0
10	9102	43	2644	61	9219	27	2666	22	8948	24	3480	22	50
20	9146	44	2705	60	9246	27	2645	21	8924	24	3459	21	40
30	9189	43	2765	61	9273	27	2623	22	8900	24	3437	22	30
40	9232	43	2826	61	9301	28	2602	21	8876	24	3415	22	20
50	9276	44	2887	61	9328	27	2580	22	8852	24	3393	22	10
42 0	0.449319	43	0.502948	61	1.119355	27	2.22559	21	1.98828	24	0.893371	22	**18** 0
10	9362	43	3008	60	9383	28	2538	21	8804	24	3350	21	50
20	9406	44	3069	61	9410	27	2516	22	8780	24	3328	22	40
30	9449	43	3130	61	9437	27	2495	21	8756	24	3306	22	30
40	9492	43	3191	61	9465	28	2473	22	8732	24	3284	22	20
50	9536	44	3251	60	9492	27	2452	21	8708	24	3262	22	10
43 0	0.449579	43	0.503312	61	1.119519	27	2.22430	22	1.98684	24	0.893241	21	**17** 0
10	9622	43	3373	61	9546	27	2409	21	8660	24	3219	22	50
20	9665	43	3434	61	9574	28	2388	21	8636	24	3197	22	40
30	9709	44	3494	60	9601	27	2366	22	8612	24	3175	22	30
40	9752	43	3555	61	9628	27	2345	21	8588	24	3153	22	20
50	9795	43	3616	61	9656	28	2323	22	8564	24	3132	21	10
44 0	0.449839	44	0.503677	61	1.119683	27	2.22302	21	1.98540	24	0.893110	22	**16** 0
10	9882	43	3738	61	9710	27	2281	21	8516	24	3088	22	50
20	9925	43	3798	60	9738	28	2259	22	8492	24	3066	22	40
30	0.449969	44	3859	61	9765	27	2238	21	8468	24	3044	22	30
40	0.450012	43	3920	61	9793	28	2216	22	8444	24	3023	21	20
50	0055	43	3981	61	9820	27	2195	21	8420	24	3001	22	10
45 0	0.450098	43	0.504041	60	1.119847	27	2.22174	21	1.98396	24	0.892979	22	**15** 0
10	0142	44	4102	61	9875	28	2152	22	8372	24	2957	22	50
20	0185	43	4163	61	9902	27	2131	21	8349	23	2935	22	40
30	0228	43	4224	61	9929	27	2110	21	8325	24	2913	22	30
40	0272	44	4285	61	9957	28	2088	22	8301	24	2892	21	20
50	0315	43	4346	61	1.119984	27	2067	21	8277	24	2870	22	10
46 0	0.450358	43	0.504406	60	1.120011	27	2.22045	22	1.98253	24	0.892848	22	**14** 0
10	0401	43	4467	61	0039	28	2024	21	8229	24	2826	22	50
20	0445	44	4528	61	0066	27	2003	21	8205	24	2804	22	40
30	0488	43	4589	61	0094	28	1981	22	8181	24	2782	22	30
40	0531	43	4650	61	0121	27	1960	21	8157	24	2761	21	20
50	0575	44	4710	60	0148	27	1939	21	8133	24	2739	22	10
47 0	0.450618	43	0.504771	61	1.120176	28	2.21918	21	1.98110	23	0.892717	22	**13** 0
10	0661	43	4832	61	0203	27	1896	22	8086	24	2695	22	50
20	0704	43	4893	61	0231	28	1875	21	8062	24	2673	22	40
30	0748	44	4954	61	0258	27	1854	21	8038	24	2651	22	30
40	0791	43	5015	61	0286	28	1832	22	8014	24	2630	21	20
50	0834	43	5075	60	0313	27	1811	21	7990	24	2608	22	10
48 0	0.450878	44	0.505136	61	1.120340	27	2.21790	21	1.97966	24	0.892586	22	**12** 0
10	0921	43	5197	61	0368	28	1768	22	7943	23	2564	22	50
20	0964	43	5258	61	0395	27	1747	21	7919	24	2542	22	40
30	1007	43	5319	61	0423	28	1726	21	7895	24	2520	22	30
40	1051	44	5380	61	0450	27	1705	21	7871	24	2498	22	20
50	1094	43	5441	61	0478	28	1683	22	7847	24	2476	22	10
49 0	0.451137	43	0.505502	61	1.120505	27	2.21662	21	1.97823	24	0.892455	21	**11** 0
10	1180	43	5562	60	0533	28	1641	21	7800	23	2433	22	50
20	1224	44	5623	61	0560	27	1620	21	7776	24	2411	22	40
30	1267	43	5684	61	0588	28	1598	22	7752	24	2389	22	30
40	1310	43	5745	61	0615	27	1577	21	7728	24	2367	22	20
50	1353	43	5806	61	0642	27	1556	21	7704	24	2345	22	10
50 0	0.451397	44	0.505867	61	1.120670	28	2.21535	21	1.97681	23	0.892323	22	**10** 0
	cos		cotg		cosec		sec		tang		sin		

21	
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9	38.7

60	
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9	54.0

63°

26°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.451397		0.505867		1.120670		2.21535		1.97681		0.892323		**10′** 0″
10	1440	43	5928	61	0697	27	1513	22	7657	24	2301	22	50
20	1483	43	5989	61	0725	28	1492	21	7633	24	2280	21	40
30	1527	44	6049	60	0752	27	1471	21	7609	24	2258	22	30
40	1570	43	6110	61	0780	28	1450	21	7585	24	2236	22	20
50	1613	43	6171	61	0807	27	1429	21	7562	23	2214	22	10
51 0	0.451656	43	0.506232	61	1.120835	28	2.21407	22	1.97538	24	0.892192	22	**9** 0
10	1700	44	6293	61	0862	27	1386	21	7514	24	2170	22	50
20	1743	43	6354	61	0890	28	1365	21	7490	24	2148	22	40
30	1786	43	6415	61	0918	28	1344	21	7467	23	2126	22	30
40	1829	43	6476	61	0945	27	1323	21	7443	24	2104	22	20
50	1873	44	6537	61	0973	28	1301	22	7419	24	2083	21	10
52 0	0.451916	43	0.506598	61	1.121000	27	2.21280	21	1.97395	24	0.892061	22	**8** 0
10	1959	43	6659	61	1028	28	1259	21	7372	23	2039	22	50
20	2002	43	6720	61	1055	27	1238	21	7348	24	2017	22	40
30	2046	44	6780	60	1083	28	1217	21	7324	24	1995	22	30
40	2089	43	6841	61	1110	27	1195	22	7300	24	1973	22	20
50	2132	43	6902	61	1138	28	1174	21	7277	23	1951	22	10
53 0	0.452175	43	0.506963	61	1.121165	27	2.21153	21	1.97253	24	0.891929	22	**7** 0
10	2219	44	7024	61	1193	28	1132	21	7229	24	1907	22	50
20	2262	43	7085	61	1220	27	1111	21	7206	23	1885	22	40
30	2305	43	7146	61	1248	28	1090	21	7182	24	1863	22	30
40	2348	43	7207	61	1276	28	1069	21	7158	24	1841	22	20
50	2391	43	7268	61	1303	27	1047	22	7134	24	1819	22	10
54 0	0.452435	44	0.507329	61	1.121331	28	2.21026	21	1.97111	23	0.891798	21	**6** 0
10	2478	43	7390	61	1358	27	1005	21	7087	24	1776	22	50
20	2521	43	7451	61	1386	28	0984	21	7063	24	1754	22	40
30	2564	43	7512	61	1414	28	0963	21	7040	23	1732	22	30
40	2608	44	7573	61	1441	27	0942	21	7016	24	1710	22	20
50	2651	43	7634	61	1469	28	0921	21	6992	24	1688	22	10
55 0	0.452694	43	0.507695	61	1.121496	27	2.20900	21	1.96969	23	0.891666	22	**5** 0
10	2737	43	7756	61	1524	28	0879	21	6945	24	1644	22	50
20	2781	44	7817	61	1552	28	0858	21	6921	24	1622	22	40
30	2824	43	7878	61	1579	27	0836	22	6898	23	1600	22	30
40	2867	43	7939	61	1607	28	0815	21	6874	24	1578	22	20
50	2910	43	8000	61	1634	27	0794	21	6851	23	1556	22	10
56 0	0.452953	43	0.508061	61	1.121662	28	2.20773	21	1.96827	24	0.891534	22	**4** 0
10	2997	44	8122	61	1690	28	0752	21	6803	24	1512	22	50
20	3040	43	8183	61	1717	27	0731	21	6780	23	1490	22	40
30	3083	43	8244	61	1745	28	0710	21	6756	24	1468	22	30
40	3126	43	8305	61	1773	28	0689	21	6732	24	1446	22	20
50	3170	44	8366	61	1800	27	0668	21	6709	23	1424	22	10
57 0	0.453213	43	0.508427	61	1.121828	28	2.20647	21	1.96685	24	0.891402	22	**3** 0
10	3256	43	8488	61	1856	28	0626	21	6662	23	1380	22	50
20	3299	43	8549	61	1883	27	0605	21	6638	24	1358	22	40
30	3342	43	8610	61	1911	28	0584	21	6614	24	1336	22	30
40	3386	44	8671	61	1938	27	0563	21	6591	23	1314	22	20
50	3429	43	8732	61	1966	28	0542	21	6567	24	1292	22	10
58 0	0.453472	43	0.508793	61	1.121994	28	2.20521	21	1.96544	23	0.891270	22	**2** 0
10	3515	43	8854	61	2022	28	0500	21	6520	24	1249	21	50
20	3558	43	8915	61	2049	27	0479	21	6496	24	1227	22	40
30	3602	44	8976	61	2077	28	0458	21	6473	23	1205	22	30
40	3645	43	9037	61	2105	28	0437	21	6449	24	1183	22	20
50	3688	43	9098	61	2132	27	0416	21	6426	23	1161	22	10
59 0	0.453731	43	0.509159	61	1.122160	28	2.20395	21	1.96402	24	0.891139	22	**1** 0
10	3775	44	9220	61	2188	28	0374	21	6379	23	1117	22	50
20	3818	43	9281	61	2215	27	0353	21	6355	24	1095	22	40
30	3861	43	9342	61	2243	28	0332	21	6332	23	1073	22	30
40	3904	43	9403	61	2271	28	0311	21	6308	24	1051	22	20
50	3947	43	9464	61	2299	28	0290	21	6285	23	1029	22	10
60 0	0.453990	43	0.509525	61	1.122326	27	2.20269	21	1.96261	24	0.891007	22	**0** 0
	cos		cotg		cosec		sec		tang		sin		

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

24	
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

28	
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2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

61	
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2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

63°

27°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.453990		0.509525		1.122326		2.20269		1.96261		0.891007		**60′** 0″
10	4034	44	9587	62	2354	28	0248	21	6238	23	0985	22	50
20	4077	43	9648	61	2382	28	0227	21	6214	24	0962	23	40
30	4120	43	9709	61	2409	27	0206	21	6191	23	0940	22	30
40	4163	43	9770	61	2437	28	0185	21	6167	24	0918	22	20
50	4206	43	9831	61	2465	28	0164	21	6143	24	0896	22	10
1 0	0.454250	44	0.509892	61	1.122493	28	2.20143	21	1.96120	23	0.890874	22	**59** 0
10	4293	43	0.509953	61	2520	27	0122	21	6097	23	0852	22	50
20	4336	43	0.510014	61	2548	28	0101	21	6073	24	0830	22	40
30	4379	43	0075	61	2576	28	0080	21	6050	23	0808	22	30
40	4422	43	0136	61	2604	28	0060	20	6026	24	0786	22	20
50	4466	44	0197	61	2631	27	0039	21	6003	23	0764	22	10
2 0	0.454509	43	0.510258	61	1.122659	28	2.20018	21	1.95979	24	0.890742	22	**58** 0
10	4552	43	0320	62	2687	28	2.19997	21	5956	23	0720	22	50
20	4595	43	0381	61	2715	28	9976	21	5932	24	0698	22	40
30	4638	43	0442	61	2743	27	9955	21	5909	23	0676	22	30
40	4682	44	0503	61	2770	28	9934	21	5885	24	0654	22	20
50	4725	43	0564	61	2798	28	9913	21	5862	23	0632	22	10
3 0	0.454768	43	0.510625	61	1.122826	28	2.19892	21	1.95838	24	0.890610	22	**57** 0
10	4811	43	0686	61	2854	28	9872	20	5815	23	0588	22	50
20	4854	43	0747	62	2882	27	9851	21	5791	24	0566	22	40
30	4897	43	0809	61	2909	28	9830	21	5768	23	0544	22	30
40	4941	44	0870	61	2937	28	9809	21	5745	23	0522	22	20
50	4984	43	0931	61	2965	28	9788	21	5721	24	0500	22	10
4 0	0.455027	43	0.510992	61	1.122993	28	2.19767	21	1.95698	23	0.890478	22	**56** 0
10	5070	43	1053	61	3021	28	9746	21	5674	24	0456	22	50
20	5113	43	1114	61	3048	27	9726	20	5651	23	0434	22	40
30	5156	43	1175	61	3076	28	9705	21	5628	23	0411	23	30
40	5200	44	1237	62	3104	28	9684	21	5604	24	0389	22	20
50	5243	43	1298	61	3132	28	9663	21	5581	23	0367	22	10
5 0	0.455286	43	0.511359	61	1.123160	28	2.19642	21	1.95557	24	0.890345	22	**55** 0
10	5329	43	1420	61	3188	28	9621	21	5534	23	0323	22	50
20	5372	43	1481	61	3215	27	9601	20	5511	23	0301	22	40
30	5415	43	1542	62	3243	28	9580	21	5487	24	0279	22	30
40	5459	44	1604	61	3271	28	9559	21	5464	23	0257	22	20
50	5502	43	1665	61	3299	28	9538	21	5440	24	0235	22	10
6 0	0.455545	43	0.511726	61	1.123327	28	2.19517	21	1.95417	23	0.890213	22	**54** 0
10	5588	43	1787	61	3355	28	9497	20	5394	23	0191	22	50
20	5631	43	1848	61	3383	28	9476	21	5370	24	0169	22	40
30	5674	43	1909	62	3411	27	9455	21	5347	23	0147	22	30
40	5718	44	1971	61	3438	28	9434	21	5324	23	0124	23	20
50	5761	43	2032	61	3466	28	9413	21	5300	24	0102	22	10
7 0	0.455804	43	0.512093	61	1.123494	28	2.19393	20	1.95277	23	0.890080	22	**53** 0
10	5847	43	2154	61	3522	28	9372	21	5254	23	0058	22	50
20	5890	43	2215	61	3550	28	9351	21	5230	24	0036	22	40
30	5933	43	2277	62	3578	28	9330	21	5207	23	0.890014	22	30
40	5976	43	2338	61	3606	28	9310	20	5184	23	0.889992	22	20
50	6020	44	2399	61	3634	28	9289	21	5160	24	9970	22	10
8 0	0.456063	43	0.512460	61	1.123662	28	2.19268	21	1.95137	23	0.889948	22	**52** 0
10	6106	43	2521	61	3690	28	9247	21	5114	23	9926	22	50
20	6149	43	2583	62	3717	27	9227	20	5090	24	9903	23	40
30	6192	43	2644	61	3745	28	9206	21	5067	23	9881	22	30
40	6235	43	2705	61	3773	28	9185	21	5044	23	9859	22	20
50	6278	43	2766	61	3801	28	9164	21	5021	23	9837	22	10
9 0	0.456322	44	0.512828	62	1.123829	28	2.19144	20	1.94997	24	0.889815	22	**51** 0
10	6365	43	2889	61	3857	28	9123	21	4974	23	9793	22	50
20	6408	43	2950	61	3885	28	9102	21	4951	23	9771	22	40
30	6451	43	3011	61	3913	28	9082	20	4928	23	9749	22	30
40	6494	43	3072	61	3941	28	9061	21	4904	24	9726	23	20
50	6537	43	3134	62	3969	28	9040	21	4881	23	9704	22	10
10 0	0.456580	43	0.513195	61	1.123997	28	2.19019	21	1.94858	23	0.889682	22	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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8	17.6
9	19.8

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2	4.8
3	7.2
4	9.6
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6	14.4
7	16.8
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9	21.6

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5	14.0
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7	19.6
8	22.4
9	25.2

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2	8.6
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4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

61	
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6	36.6
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8	48.8
9	54.9

62°

27°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.456580		0.513195		1.123997		2.19019		1.94858		0.889682		**50′** 0″
10	6624	44	3256	61	4025	28	8999	20	4834	24	9660	22	50
20	6667	43	3317	61	4053	28	8978	21	4811	23	9638	22	40
30	6710	43	3379	62	4081	28	8957	21	4788	23	9616	22	30
40	6753	43	3440	61	4109	28	8937	20	4765	23	9594	22	20
50	6796	43	3501	61	4137	28	8916	21	4741	24	9571	23	10
11 0	0.456839	43	0.513563	62	1.124165	28	2.18895	21	1.94718	23	0.889549	22	**49** 0
10	6882	43	3624	61	4193	28	8875	20	4695	23	9527	22	50
20	6925	43	3685	61	4221	28	8854	21	4672	23	9505	22	40
30	6969	44	3746	62	4249	28	8833	21	4649	23	9483	22	30
40	7012	43	3808	61	4277	28	8813	20	4625	24	9461	22	20
50	7055	43	3869	61	4305	28	8792	21	4602	23	9439	22	10
12 0	0.457098	43	0.513930	61	1.124333	28	2.18772	20	1.94579	23	0.889416	23	**48** 0
10	7141	43	3991	62	4361	28	8751	21	4556	23	9394	22	50
20	7184	43	4053	61	4389	28	8730	21	4533	23	9372	22	40
30	7227	43	4114	61	4417	28	8710	20	4509	24	9350	22	30
40	7270	43	4175	62	4445	28	8689	21	4486	23	9328	22	20
50	7314	44	4237	61	4473	28	8668	21	4463	23	9306	22	10
13 0	0.457357	43	0.514298	61	1.124501	28	2.18648	20	1.94440	23	0.889283	23	**47** 0
10	7400	43	4359	62	4529	28	8627	21	4417	23	9261	22	50
20	7443	43	4421	61	4557	28	8607	20	4393	24	9239	22	40
30	7486	43	4482	61	4585	28	8586	21	4370	23	9217	22	30
40	7529	43	4543	62	4613	28	8565	21	4347	23	9195	22	20
50	7572	43	4605	61	4641	28	8545	20	4324	23	9172	23	10
14 0	0.457615	43	0.514666	61	1.124669	28	2.18524	21	1.94301	23	0.889150	22	**46** 0
10	7658	43	4727	62	4697	28	8504	20	4278	23	9128	22	50
20	7702	44	4789	61	4725	28	8483	21	4255	23	9106	22	40
30	7745	43	4850	61	4753	28	8462	21	4231	24	9084	22	30
40	7788	43	4911	62	4782	29	8442	20	4208	23	9062	22	20
50	7831	43	4973	61	4810	28	8421	21	4185	23	9039	23	10
15 0	0.457874	43	0.515034	61	1.124838	28	2.18401	20	1.94162	23	0.889017	22	**45** 0
10	7917	43	5095	62	4866	28	8380	21	4139	23	8995	22	50
20	7960	43	5157	61	4894	28	8360	20	4116	23	8973	22	40
30	8003	43	5218	61	4922	28	8339	21	4093	23	8951	22	30
40	8046	43	5279	62	4950	28	8319	20	4070	23	8928	23	20
50	8089	43	5341	61	4978	28	8298	21	4046	24	8906	22	10
16 0	0.458133	44	0.515402	61	1.125006	28	2.18277	21	1.94023	23	0.888884	22	**44** 0
10	8176	43	5463	62	5034	28	8257	20	4000	23	8862	22	50
20	8219	43	5525	61	5063	29	8236	21	3977	23	8839	23	40
30	8262	43	5586	61	5091	28	8216	20	3954	23	8817	22	30
40	8305	43	5647	62	5119	28	8195	21	3931	23	8795	22	20
50	8348	43	5709	61	5147	28	8175	20	3908	23	8773	22	10
17 0	0.458391	43	0.515770	62	1.125175	28	2.18154	21	1.93885	23	0.888751	22	**43** 0
10	8434	43	5832	61	5203	28	8134	20	3862	23	8728	23	50
20	8477	43	5893	61	5231	28	8113	21	3839	23	8706	22	40
30	8520	43	5954	62	5259	29	8093	20	3816	23	8684	22	30
40	8563	43	6016	61	5288	28	8072	21	3793	23	8662	22	20
50	8606	43	6077	61	5316	28	8052	20	3769	24	8639	23	10
18 0	0.458650	44	0.516138	62	1.125344	28	2.18031	21	1.93746	23	0.888617	22	**42** 0
10	8693	43	6200	61	5372	28	8011	20	3723	23	8595	22	50
20	8736	43	6261	62	5400	28	7990	21	3700	23	8573	22	40
30	8779	43	6323	61	5428	29	7970	20	3677	23	8551	23	30
40	8822	43	6384	62	5457	28	7950	20	3654	23	8528	22	20
50	8865	43	6446	61	5485	28	7929	21	3631	23	8506	22	10
19 0	0.458908	43	0.516507	61	1.125513	28	2.17909	20	1.93608	23	0.888484	22	**41** 0
10	8951	43	6568	62	5541	28	7888	21	3585	23	8462	22	50
20	8994	43	6630	61	5569	28	7868	20	3562	23	8439	23	40
30	9037	43	6691	62	5598	29	7847	21	3539	23	8417	22	30
40	9080	43	6753	61	5626	28	7827	20	3516	23	8395	22	20
50	9123	43	6814	61	5654	28	7806	21	3493	23	8373	22	10
20 0	0.459166	43	0.516875	61	1.125682	28	2.17786	20	1.93470	23	0.888350	23	**40** 0
	cos		cotg		cosec		sec		tang		sin		

21	
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2	4.2
3	6.3
4	8.4
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9	18.9

23	
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3	6.9
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7	16.1
8	18.4
9	20.7

27	
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3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

29	
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9	26.1

44	
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3	13.2
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5	22.0
6	26.4
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9	39.6

62	
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8	49.6
9	55.8

62°

27°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.459166		0.516875		1.125682		2.17786		1.93470		0.888350		**40′** 0″
10	9210	44	6937	62	5710	28	7766	20	3447	23	8328	22	50
20	9253	43	6998	61	5739	29	7745	21	3424	23	8306	22	40
30	9296	43	7060	62	5767	28	7725	20	3401	23	8283	23	30
40	9339	43	7121	61	5795	28	7704	21	3378	23	8261	22	20
50	9382	43	7183	62	5823	28	7684	20	3355	23	8239	22	10
21 0	0.459425	43	0.517244	61	1.125851	28	2.17663	21	1.93332	23	0.888217	22	**39** 0
10	9468	43	7306	62	5880	29	7643	20	3309	23	8194	23	50
20	9511	43	7367	61	5908	28	7623	20	3286	23	8172	22	40
30	9554	43	7428	61	5936	28	7602	21	3263	23	8150	22	30
40	9597	43	7490	62	5964	28	7582	20	3240	23	8128	22	20
50	9640	43	7551	61	5993	29	7562	20	3218	22	8105	23	10
22 0	0.459683	43	0.517613	62	1.126021	28	2.17541	21	1.93195	23	0.888083	22	**38** 0
10	9726	43	7674	61	6049	28	7521	20	3172	23	8061	22	50
20	9769	43	7736	62	6077	28	7500	21	3149	23	8038	23	40
30	9812	43	7797	61	6106	29	7480	20	3126	23	8016	22	30
40	9855	43	7859	62	6134	28	7460	20	3103	23	7994	22	20
50	9898	43	7920	61	6162	28	7439	21	3080	23	7972	22	10
23 0	0.459942	44	0.517982	62	1.126191	29	2.17419	20	1.93057	23	0.887949	23	**37** 0
10	0.459985	43	8043	61	6219	28	7399	20	3034	23	7927	22	50
20	0.460028	43	8105	62	6247	28	7378	21	3011	23	7905	22	40
30	0071	43	8166	61	6275	28	7358	20	2988	23	7882	23	30
40	0114	43	8228	62	6304	29	7338	20	2965	23	7860	22	20
50	0157	43	8289	61	6332	28	7317	21	2942	23	7838	22	10
24 0	0.460200	43	0.518351	62	1.126360	28	2.17297	20	1.92920	22	0.887815	23	**36** 0
10	0243	43	8412	61	6389	29	7277	20	2897	23	7793	22	50
20	0286	43	8474	62	6417	28	7256	21	2874	23	7771	22	40
30	0329	43	8535	61	6445	28	7236	20	2851	23	7748	23	30
40	0372	43	8597	62	6474	29	7216	20	2828	23	7726	22	20
50	0415	43	8658	61	6502	28	7195	21	2805	23	7704	22	10
25 0	0.460458	43	0.518720	62	1.126530	28	2.17175	20	1.92782	23	0.887681	23	**35** 0
10	0501	43	8781	61	6559	29	7155	20	2759	23	7659	22	50
20	0544	43	8843	62	6587	28	7134	21	2737	22	7637	22	40
30	0587	43	8904	61	6615	28	7114	20	2714	23	7615	22	30
40	0630	43	8966	62	6644	29	7094	20	2691	23	7592	23	20
50	0673	43	9028	62	6672	28	7074	20	2668	23	7570	22	10
26 0	0.460716	43	0.519089	61	1.126700	28	2.17053	21	1.92645	23	0.887548	22	**34** 0
10	0759	43	9151	62	6729	29	7033	20	2622	23	7525	23	50
20	0802	43	9212	61	6757	28	7013	20	2599	23	7503	22	40
30	0845	43	9274	62	6785	28	6993	20	2577	22	7480	23	30
40	0888	43	9335	61	6814	29	6972	21	2554	23	7458	22	20
50	0931	43	9397	62	6842	28	6952	20	2531	23	7436	22	10
27 0	0.460974	43	0.519458	61	1.126870	28	2.16932	20	1.92508	23	0.887413	23	**33** 0
10	1017	43	9520	62	6899	29	6912	20	2485	23	7391	22	50
20	1060	43	9582	62	6927	28	6891	21	2463	22	7369	22	40
30	1103	43	9643	61	6956	29	6871	20	2440	23	7346	23	30
40	1146	43	9705	62	6984	28	6851	20	2417	23	7324	22	20
50	1189	43	9766	61	7012	28	6831	20	2394	23	7302	22	10
28 0	0.461232	43	0.519828	62	1.127041	29	2.16810	21	1.92371	23	0.887279	23	**32** 0
10	1276	44	9889	61	7069	28	6790	20	2349	22	7257	22	50
20	1319	43	0.519951	62	7098	29	6770	20	2326	23	7235	22	40
30	1362	43	0.520013	62	7126	28	6750	20	2303	23	7212	23	30
40	1405	43	0074	61	7154	28	6730	20	2280	23	7190	22	20
50	1448	43	0136	62	7183	29	6709	21	2257	23	7167	23	10
29 0	0.461491	43	0.520197	61	1.127211	28	2.16689	20	1.92235	22	0.887145	22	**31** 0
10	1534	43	0259	62	7240	29	6669	20	2212	23	7123	22	50
20	1577	43	0321	62	7268	28	6649	20	2189	23	7100	23	40
30	1620	43	0382	61	7297	29	6629	20	2166	23	7078	22	30
40	1663	43	0444	62	7325	28	6608	21	2144	22	7056	22	20
50	1706	43	0505	61	7353	28	6588	20	2121	23	7033	23	10
30 0	0.461749	43	0.520567	62	1.127382	29	2.16568	20	1.92098	23	0.887011	22	**30** 0
	cos		cotg		cosec		sec		tang		sin		

19	
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7	13.3
8	15.2
9	17.1

21	
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2	4.2
3	6.3
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5	10.5
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7	14.7
8	16.8
9	18.9

23	
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3	6.9
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7	16.1
8	18.4
9	20.7

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6	17.4
7	20.3
8	23.2
9	26.1

43	
1	4.3
2	8.6
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4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

61	
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3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

62°

27°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.461749		0.520567		1.127382		2.16568		1.92098		0.887011		**30′** 0″
10	1792	43	0629	62	7410	28	6548	20	2075	23	6988	23	50
20	1835	43	0690	61	7439	29	6528	20	2053	22	6966	22	40
30	1878	43	0752	62	7467	28	6508	20	2030	23	6944	22	30
40	1921	43	0814	62	7496	29	6487	21	2007	23	6921	23	20
50	1964	43	0875	61	7524	28	6467	20	1985	22	6899	22	10
31 0	0.462007	43	0.520937	62	1.127553	29	2.16447	20	1.91962	23	0.886876	23	**29** 0
10	2050	43	0998	61	7581	28	6427	20	1939	23	6854	22	50
20	2093	43	1060	62	7610	29	6407	20	1916	23	6832	22	40
30	2136	43	1122	62	7638	28	6387	20	1894	22	6809	23	30
40	2179	43	1183	61	7667	29	6367	20	1871	23	6787	22	20
50	2222	43	1245	62	7695	28	6346	21	1848	23	6764	23	10
32 0	0.462265	43	0.521307	62	1.127724	29	2.16326	20	1.91826	22	0.886742	22	**28** 0
10	2308	43	1368	61	7752	28	6306	20	1803	23	6720	22	50
20	2351	43	1430	62	7781	29	6286	20	1780	23	6697	23	40
30	2394	43	1492	62	7809	28	6266	20	1758	22	6675	22	30
40	2437	43	1553	61	7838	29	6246	20	1735	23	6652	23	20
50	2480	43	1615	62	7866	28	6226	20	1712	23	6630	22	10
33 0	0.462523	43	0.521677	62	1.127895	29	2.16206	20	1.91690	22	0.886608	22	**27** 0
10	2565	42	1738	61	7923	28	6186	20	1667	23	6585	23	50
20	2608	43	1800	62	7952	29	6166	20	1644	23	6563	22	40
30	2651	43	1862	62	7980	28	6145	21	1622	22	6540	23	30
40	2694	43	1923	61	8009	29	6125	20	1599	23	6518	22	20
50	2737	43	1985	62	8037	28	6105	20	1576	23	6495	23	10
34 0	0.462780	43	0.522047	62	1.128066	29	2.16085	20	1.91554	22	0.886473	22	**26** 0
10	2823	43	2109	62	8095	29	6065	20	1531	23	6451	22	50
20	2866	43	2170	61	8123	28	6045	20	1508	23	6428	23	40
30	2909	43	2232	62	8152	29	6025	20	1486	22	6406	22	30
40	2952	43	2294	62	8180	28	6005	20	1463	23	6383	23	20
50	2995	43	2355	61	8209	29	5985	20	1441	22	6361	22	10
35 0	0.463038	43	0.522417	62	1.128237	28	2.15965	20	1.91418	23	0.886338	23	**25** 0
10	3081	43	2479	62	8266	29	5945	20	1395	23	6316	22	50
20	3124	43	2540	61	8295	29	5925	20	1373	22	6293	23	40
30	3167	43	2602	62	8323	28	5905	20	1350	23	6271	22	30
40	3210	43	2664	62	8352	29	5885	20	1328	22	6248	23	20
50	3253	43	2726	62	8380	28	5865	20	1305	23	6226	22	10
36 0	0.463296	43	0.522787	61	1.128409	29	2.15845	20	1.91282	23	0.886204	22	**24** 0
10	3339	43	2849	62	8437	28	5825	20	1260	22	6181	23	50
20	3382	43	2911	62	8466	29	5805	20	1237	23	6159	22	40
30	3425	43	2973	62	8495	29	5785	20	1215	22	6136	23	30
40	3468	43	3034	61	8523	28	5765	20	1192	23	6114	22	20
50	3511	43	3096	62	8552	29	5745	20	1169	23	6091	23	10
37 0	0.463554	43	0.523158	62	1.128581	29	2.15725	20	1.91147	22	0.886069	22	**23** 0
10	3597	43	3220	62	8609	28	5705	20	1124	23	6046	23	50
20	3640	43	3281	61	8638	29	5685	20	1102	22	6024	22	40
30	3683	43	3343	62	8666	28	5665	20	1079	23	6001	23	30
40	3726	43	3405	62	8695	29	5645	20	1057	22	5979	22	20
50	3769	43	3467	62	8724	29	5625	20	1034	23	5956	23	10
38 0	0.463812	43	0.523528	61	1.128752	28	2.15605	20	1.91012	22	0.885934	22	**22** 0
10	3854	42	3590	62	8781	29	5585	20	0989	23	5911	23	50
20	3897	43	3652	62	8810	29	5565	20	0967	22	5889	22	40
30	3940	43	3714	62	8838	28	5545	20	0944	23	5866	23	30
40	3983	43	3775	61	8867	29	5525	20	0922	22	5844	22	20
50	4026	43	3837	62	8896	29	5505	20	0899	23	5821	23	10
39 0	0.464069	43	0.523899	62	1.128924	28	2.15485	20	1.90876	23	0.885799	22	**21** 0
10	4112	43	3961	62	8953	29	5465	20	0854	22	5776	23	50
20	4155	43	4023	62	8982	29	5445	20	0831	23	5754	22	40
30	4198	43	4084	61	9010	28	5425	20	0809	22	5731	23	30
40	4241	43	4146	62	9039	29	5405	20	0786	23	5709	22	20
50	4284	43	4208	62	9068	29	5385	20	0764	22	5686	23	10
40 0	0.464327	43	0.524270	62	1.129096	28	2.15366	19	1.90741	23	0.885664	22	**20** 0
	cos		cotg		cosec		sec		tang		sin		

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6	13.2
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8	17.6
9	19.8

28	
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4	11.2
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6	16.8
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9	25.2

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8	33.6
9	37.8

44	
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3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

62	
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4	24.8
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6	37.2
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8	49.6
9	55.8

62°

27°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.464327		0.524270		1.129096		2.15366		1.90741		0.885664		**20′** 0″
10	4370	43	4332	62	9125	29	5346	20	0719	22	5641	23	50
20	4413	43	4393	61	9154	29	5326	20	0697	22	5619	22	40
30	4456	43	4455	62	9183	29	5306	20	0674	23	5596	23	30
40	4499	43	4517	62	9211	28	5286	20	0652	22	5574	22	20
50	4542	43	4579	62	9240	29	5266	20	0629	23	5551	23	10
41 0	0.464584	42	0.524641	62	1.129269	29	2.15246	20	1.90607	22	0.885529	22	**19** 0
10	4627	43	4703	62	9297	28	5226	20	0584	23	5506	23	50
20	4670	43	4764	61	9326	29	5206	20	0562	22	5484	22	40
30	4713	43	4826	62	9355	29	5186	20	0539	23	5461	23	30
40	4756	43	4888	62	9384	29	5167	19	0517	22	5439	22	20
50	4799	43	4950	62	9412	28	5147	20	0494	23	5416	23	10
42 0	0.464842	43	0.525012	62	1.129441	29	2.15127	20	1.90472	22	0.885394	22	**18** 0
10	4885	43	5074	62	9470	29	5107	20	0449	23	5371	23	50
20	4928	43	5135	61	9499	29	5087	20	0427	22	5349	22	40
30	4971	43	5197	62	9527	28	5067	20	0405	22	5326	23	30
40	5014	43	5259	62	9556	29	5047	20	0382	23	5303	23	20
50	5057	43	5321	62	9585	29	5028	19	0360	22	5281	22	10
43 0	0.465100	43	0.525383	62	1.129614	29	2.15008	20	1.90337	23	0.885258	23	**17** 0
10	5142	42	5445	62	9642	28	4988	20	0315	22	5236	22	50
20	5185	43	5507	62	9671	29	4968	20	0293	22	5213	23	40
30	5228	43	5568	61	9700	29	4948	20	0270	23	5191	22	30
40	5271	43	5630	62	9729	29	4928	20	0248	22	5168	23	20
50	5314	43	5692	62	9758	29	4909	19	0225	23	5146	22	10
44 0	0.465357	43	0.525754	62	1.129786	28	2.14889	20	1.90203	22	0.885123	23	**16** 0
10	5400	43	5816	62	9815	29	4869	20	0181	22	5100	23	50
20	5443	43	5878	62	9844	29	4849	20	0158	23	5078	22	40
30	5486	43	5940	62	9873	29	4829	20	0136	22	5055	23	30
40	5529	43	6002	62	9902	29	4810	19	0113	23	5033	22	20
50	5572	43	6064	62	9930	28	4790	20	0091	22	5010	23	10
45 0	0.465615	43	0.526125	61	1.129959	29	2.14770	20	1.90069	22	0.884988	22	**15** 0
10	5657	42	6187	62	1.129988	29	4750	20	0046	23	4965	23	50
20	5700	43	6249	62	1.130017	29	4730	19	0024	22	4942	22	40
30	5743	43	6311	62	0046	29	4711	20	1.90002	22	4920	22	30
40	5786	43	6373	62	0075	29	4691	20	1.89979	23	4897	23	20
50	5829	43	6435	62	0103	28	4671	20	9957	22	4875	22	10
46 0	0.465872	43	0.526497	62	1.130132	29	2.14651	20	1.89935	22	0.884852	23	**14** 0
10	5915	43	6559	62	0161	29	4632	19	9912	23	4830	22	50
20	5958	43	6621	62	0190	29	4612	20	9890	22	4807	23	40
30	6001	43	6683	62	0219	29	4592	20	9868	22	4784	23	30
40	6044	43	6745	62	0248	29	4572	20	9845	23	4762	22	20
50	6086	42	6807	62	0277	29	4552	20	9823	22	4739	23	10
47 0	0.466129	43	0.526868	61	1.130305	28	2.14533	19	1.89801	22	0.884717	22	**13** 0
10	6172	43	6930	62	0334	29	4513	20	9778	23	4694	23	50
20	6215	43	6992	62	0363	29	4493	20	9756	22	4671	23	40
30	6258	43	7054	62	0392	29	4474	19	9734	22	4649	22	30
40	6301	43	7116	62	0421	29	4454	20	9711	23	4626	23	20
50	6344	43	7178	62	0450	29	4434	20	9689	22	4604	22	10
48 0	0.466387	43	0.527240	62	1.130479	29	2.14414	20	1.89667	22	0.884581	23	**12** 0
10	6430	43	7302	62	0508	29	4395	19	9645	22	4558	23	50
20	6472	42	7364	62	0537	29	4375	20	9622	23	4536	22	40
30	6515	43	7426	62	0565	28	4355	20	9600	22	4513	23	30
40	6558	43	7488	62	0594	29	4336	19	9578	22	4491	22	20
50	6601	43	7550	62	0623	29	4316	20	9555	23	4468	23	10
49 0	0.466644	43	0.527612	62	1.130652	29	2.14296	20	1.89533	22	0.884445	23	**11** 0
10	6687	43	7674	62	0681	29	4276	20	9511	22	4423	22	50
20	6730	43	7736	62	0710	29	4257	19	9489	22	4400	23	40
30	6773	43	7798	62	0739	29	4237	20	9466	23	4377	23	30
40	6815	42	7860	62	0768	29	4217	20	9444	22	4355	22	20
50	6858	43	7922	62	0797	29	4198	19	9422	22	4332	23	10
50 0	0.466901	43	0.527984	62	1.130826	29	2.14178	20	1.89400	22	0.884309	23	**10** 0
	cos		cotg		cosec		sec		tang		sin		

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9	17.1

22	
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28	
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8	22.4
9	25.2

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9	27.0

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62	
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8	49.6
9	55.8

62°

27°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.466901		0.527984		1.130826		2.14178		1.89400		0.884309		**10′** 0″
10	6944	43	8046	62	0855	29	4158	20	9377	23	4287	22	50
20	6987	43	8108	62	0884	29	4139	19	9355	22	4264	23	40
30	7030	43	8170	62	0913	29	4119	20	9333	22	4242	22	30
40	7073	43	8232	62	0942	29	4099	20	9311	22	4219	23	20
50	7116	43	8294	62	0971	29	4080	19	9289	22	4196	23	10
51 0	0.467158	42	0.528356	62	1.131000	29	2.14060	20	1.89266	23	0.884174	22	**9** 0
10	7201	43	8418	62	1029	29	4041	19	9244	22	4151	23	50
20	7244	43	8480	62	1058	29	4021	20	9222	22	4128	23	40
30	7287	43	8542	62	1086	28	4001	20	9200	22	4106	22	30
40	7330	43	8604	62	1115	29	3982	19	9178	22	4083	23	20
50	7373	43	8666	62	1144	29	3962	20	9155	23	4060	23	10
52 0	0.467416	43	0.528728	62	1.131173	29	2.13942	20	1.89133	22	0.884038	22	**8** 0
10	7458	42	8790	62	1202	29	3923	19	9111	22	4015	23	50
20	7501	43	8852	62	1231	29	3903	20	9089	22	3992	23	40
30	7544	43	8914	62	1260	29	3884	19	9067	22	3970	22	30
40	7587	43	8976	62	1289	29	3864	20	9044	23	3947	23	20
50	7630	43	9038	62	1318	29	3844	20	9022	22	3924	23	10
53 0	0.467673	43	0.529100	62	1.131348	30	2.13825	19	1.89000	22	0.883902	22	**7** 0
10	7716	43	9162	62	1377	29	3805	20	8978	22	3879	23	50
20	7758	42	9224	62	1406	29	3786	19	8956	22	3856	23	40
30	7801	43	9287	63	1435	29	3766	20	8934	22	3834	22	30
40	7844	43	9349	62	1464	29	3746	20	8911	23	3811	23	20
50	7887	43	9411	62	1493	29	3727	19	8889	22	3788	23	10
54 0	0.467930	43	0.529473	62	1.131522	29	2.13707	20	1.88867	22	0.883766	22	**6** 0
10	7973	43	9535	62	1551	29	3688	19	8845	22	3743	23	50
20	8016	43	9597	62	1580	29	3668	20	8823	22	3720	23	40
30	8058	42	9659	62	1609	29	3649	19	8801	22	3698	22	30
40	8101	43	9721	62	1638	29	3629	20	8779	22	3675	23	20
50	8144	43	9783	62	1667	29	3609	20	8756	23	3652	23	10
55 0	0.468187	43	0.529845	62	1.131696	29	2.13590	19	1.88734	22	0.883629	23	**5** 0
10	8230	43	9907	62	1725	29	3570	20	8712	22	3607	22	50
20	8273	43	0.529969	62	1754	29	3551	19	8690	22	3584	23	40
30	8315	42	0.530032	63	1783	29	3531	20	8668	22	3561	23	30
40	8358	43	0094	62	1812	29	3512	19	8646	22	3539	22	20
50	8401	43	0156	62	1841	29	3492	20	8624	22	3516	23	10
56 0	0.468444	43	0.530218	62	1.131871	30	2.13473	19	1.88602	22	0.883493	23	**4** 0
10	8487	43	0280	62	1900	29	3453	20	8580	22	3471	22	50
20	8530	43	0342	62	1929	29	3434	19	8558	22	3448	23	40
30	8572	42	0404	62	1958	29	3414	20	8535	23	3425	23	30
40	8615	43	0466	62	1987	29	3395	19	8513	22	3402	23	20
50	8658	43	0528	62	2016	29	3375	20	8491	22	3380	22	10
57 0	0.468701	43	0.530591	63	1.132045	29	2.13356	19	1.88469	22	0.883357	23	**3** 0
10	8744	43	0653	62	2074	29	3336	20	8447	22	3334	23	50
20	8787	43	0715	62	2103	29	3317	19	8425	22	3311	23	40
30	8829	42	0777	62	2133	30	3297	20	8403	22	3289	22	30
40	8872	43	0839	62	2162	29	3278	19	8381	22	3266	23	20
50	8915	43	0901	62	2191	29	3258	20	8359	22	3243	23	10
58 0	0.468958	43	0.530963	62	1.132220	29	2.13239	19	1.88337	22	0.883221	22	**2** 0
10	9001	43	1026	63	2249	29	3219	20	8315	22	3198	23	50
20	9043	42	1088	62	2278	29	3200	19	8293	22	3175	23	40
30	9086	43	1150	62	2307	29	3180	20	8271	22	3152	23	30
40	9129	43	1212	62	2337	30	3161	19	8249	22	3130	22	20
50	9172	43	1274	62	2366	29	3141	20	8227	22	3107	23	10
59 0	0.469215	43	0.531336	62	1.132395	29	2.13122	19	1.88205	22	0.883084	23	**1** 0
10	9258	43	1399	63	2424	29	3103	19	8183	22	3061	23	50
20	9300	42	1461	62	2453	29	3083	20	8161	22	3039	22	40
30	9343	43	1523	62	2482	29	3064	19	8139	22	3016	23	30
40	9386	43	1585	62	2512	30	3044	20	8117	22	2993	23	20
50	9429	43	1647	62	2541	29	3025	19	8095	22	2970	23	10
60 0	0.469472	43	0.531709	62	1.132570	29	2.13005	20	1.88073	22	0.882948	22	**0** 0
	cos		cotg		cosec		sec		tang		sin		

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9	18.0

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7	16.1
8	18.4
9	20.7

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6	17.4
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8	23.2
9	26.1

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6	25.2
7	29.4
8	33.6
9	37.8

61	
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4	24.4
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6	36.6
7	42.7
8	48.8
9	54.9

63	
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2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

62°

28°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.469472		0.531709		1.132570		2.13005		1.88073		0.882948		**60′** 0″
10	9514	42	1772	63	2599	29	2986	19	8051	22	2925	23	50
20	9557	43	1834	62	2628	29	2967	19	8029	22	2902	23	40
30	9600	43	1896	62	2658	30	2947	20	8007	22	2879	23	30
40	9643	43	1958	62	2687	29	2928	19	7985	22	2857	22	20
50	9686	43	2020	62	2716	29	2908	20	7963	22	2834	23	10
1 0	0.469728	42	0.532083	63	1.132745	29	2.12889	19	1.87941	22	0.882811	23	**59** 0
10	9771	43	2145	62	2775	30	2870	19	7919	22	2788	23	50
20	9814	43	2207	62	2804	29	2850	20	7897	22	2765	23	40
30	9857	43	2269	62	2833	29	2831	19	7875	22	2743	22	30
40	9900	43	2331	62	2862	29	2811	20	7853	22	2720	23	20
50	9942	42	2394	63	2891	29	2792	19	7831	22	2697	23	10
2 0	0.469985	43	0.532456	62	1.132921	30	2.12773	19	1.87809	22	0.882674	23	**58** 0
10	0.470028	43	2518	62	2950	29	2753	20	7787	22	2652	22	50
20	0071	43	2580	62	2979	29	2734	19	7765	22	2629	23	40
30	0114	43	2643	63	3008	29	2715	19	7743	22	2606	23	30
40	0156	42	2705	62	3038	30	2695	20	7721	22	2583	23	20
50	0199	43	2767	62	3067	29	2676	19	7699	22	2560	23	10
3 0	0.470242	43	0.532829	62	1.133096	29	2.12657	19	1.87677	22	0.882538	22	**57** 0
10	0285	43	2892	63	3126	30	2637	20	7655	22	2515	23	50
20	0327	42	2954	62	3155	29	2618	19	7634	21	2492	23	40
30	0370	43	3016	62	3184	29	2598	20	7612	22	2469	23	30
40	0413	43	3078	62	3213	29	2579	19	7590	22	2446	23	20
50	0456	43	3141	63	3243	30	2560	19	7568	22	2424	22	10
4 0	0.470499	43	0.533203	62	1.133272	29	2.12540	20	1.87546	22	0.882401	23	**56** 0
10	0541	42	3265	62	3301	29	2521	19	7524	22	2378	23	50
20	0584	43	3327	62	3331	30	2502	19	7502	22	2355	23	40
30	0627	43	3390	63	3360	29	2483	19	7480	22	2332	23	30
40	0670	43	3452	62	3389	29	2463	20	7458	22	2309	23	20
50	0712	42	3514	62	3418	29	2444	19	7436	22	2287	22	10
5 0	0.470755	43	0.533577	63	1.133448	30	2.12425	19	1.87415	21	0.882264	23	**55** 0
10	0798	43	3639	62	3477	29	2405	20	7393	22	2241	23	50
20	0841	43	3701	62	3506	29	2386	19	7371	22	2218	23	40
30	0884	43	3763	62	3536	30	2367	19	7349	22	2195	23	30
40	0926	42	3826	63	3565	29	2347	20	7327	22	2173	22	20
50	0969	43	3888	62	3594	29	2328	19	7305	22	2150	23	10
6 0	0.471012	43	0.533950	62	1.133624	30	2.12309	19	1.87283	22	0.882127	23	**54** 0
10	1055	43	4013	63	3653	29	2290	19	7262	21	2104	23	50
20	1097	42	4075	62	3682	29	2270	20	7240	22	2081	23	40
30	1140	43	4137	62	3712	30	2251	19	7218	22	2058	23	30
40	1183	43	4200	63	3741	29	2232	19	7196	22	2036	22	20
50	1226	43	4262	62	3771	30	2213	19	7174	22	2013	23	10
7 0	0.471268	42	0.534324	62	1.133800	29	2.12193	20	1.87152	22	0.881990	23	**53** 0
10	1311	43	4386	62	3829	29	2174	19	7130	22	1967	23	50
20	1354	43	4449	63	3859	30	2155	19	7109	21	1944	23	40
30	1397	43	4511	62	3888	29	2136	19	7087	22	1921	23	30
40	1439	42	4573	62	3917	29	2116	20	7065	22	1898	23	20
50	1482	43	4636	63	3947	30	2097	19	7043	22	1876	22	10
8 0	0.471525	43	0.534698	62	1.133976	29	2.12078	19	1.87021	22	0.881853	23	**52** 0
10	1568	43	4760	62	4006	30	2059	19	7000	21	1830	23	50
20	1611	43	4823	63	4035	29	2039	20	6978	22	1807	23	40
30	1653	42	4885	62	4064	29	2020	19	6956	22	1784	23	30
40	1696	43	4948	63	4094	30	2001	19	6934	22	1761	23	20
50	1739	43	5010	62	4123	29	1982	19	6912	22	1738	23	10
9 0	0.471782	43	0.535072	62	1.134153	30	2.11963	19	1.86891	21	0.881715	23	**51** 0
10	1824	42	5135	63	4182	29	1943	20	6869	22	1693	22	50
20	1867	43	5197	62	4212	30	1924	19	6847	22	1670	23	40
30	1910	43	5259	62	4241	29	1905	19	6825	22	1647	23	30
40	1952	42	5322	63	4270	29	1886	19	6804	21	1624	23	20
50	1995	43	5384	62	4300	30	1867	19	6782	22	1601	23	10
10 0	0.472038	43	0.535446	62	1.134329	29	2.11847	20	1.86760	22	0.881578	23	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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8	16.0
9	18.0

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8	23.2
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6	25.2
7	29.4
8	33.6
9	37.8

62	
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6	37.2
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9	55.8

61°

28°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.472038		0.535446		1.134329		2.11847		1.86760		0.881578		**50′** 0″
10	2081	43	5509	63	4359	30	1828	19	6738	22	1555	23	50
20	2123	42	5571	62	4388	29	1809	19	6717	21	1532	23	40
30	2166	43	5634	63	4418	30	1790	19	6695	22	1510	22	30
40	2209	43	5696	62	4447	29	1771	19	6673	22	1487	23	20
50	2252	43	5758	62	4477	30	1752	19	6651	22	1464	23	10
11 0	0.472294	42	0.535821	63	1.134506	29	2.11732	20	1.86630	21	0.881441	23	**49** 0
10	2337	43	5883	62	4536	30	1713	19	6608	22	1418	23	50
20	2380	43	5946	63	4565	29	1694	19	6586	22	1395	23	40
30	2423	43	6008	62	4594	29	1675	19	6564	22	1372	23	30
40	2465	42	6070	62	4624	30	1656	19	6543	21	1349	23	20
50	2508	43	6133	63	4653	29	1637	19	6521	22	1326	23	10
12 0	0.472551	43	0.536195	62	1.134683	30	2.11617	20	1.86499	22	0.881303	23	**48** 0
10	2593	42	6258	63	4712	29	1598	19	6478	21	1281	22	50
20	2636	43	6320	62	4742	30	1579	19	6456	22	1258	23	40
30	2679	43	6383	63	4771	29	1560	19	6434	22	1235	23	30
40	2722	43	6445	62	4801	30	1541	19	6412	22	1212	23	20
50	2764	42	6507	62	4830	29	1522	19	6391	21	1189	23	10
13 0	0.472807	43	0.536570	63	1.134860	30	2.11503	19	1.86369	22	0.881166	23	**47** 0
10	2850	43	6632	62	4890	30	1484	19	6347	22	1143	23	50
20	2893	43	6695	63	4919	29	1465	19	6326	21	1120	23	40
30	2935	42	6757	62	4949	30	1445	20	6304	22	1097	23	30
40	2978	43	6820	63	4978	29	1426	19	6282	22	1074	23	20
50	3021	43	6882	62	5008	30	1407	19	6261	21	1051	23	10
14 0	0.473063	42	0.536945	63	1.135037	29	2.11388	19	1.86239	22	0.881028	23	**46** 0
10	3106	43	7007	62	5067	30	1369	19	6217	22	1005	23	50
20	3149	43	7069	62	5096	29	1350	19	6196	21	0983	22	40
30	3192	43	7132	63	5126	30	1331	19	6174	22	0960	23	30
40	3234	42	7194	62	5155	29	1312	19	6152	22	0937	23	20
50	3277	43	7257	63	5185	30	1293	19	6131	21	0914	23	10
15 0	0.473320	43	0.537319	62	1.135215	30	2.11274	19	1.86109	22	0.880891	23	**45** 0
10	3362	42	7382	63	5244	29	1255	19	6087	22	0868	23	50
20	3405	43	7444	62	5274	30	1236	19	6066	21	0845	23	40
30	3448	43	7507	63	5303	29	1217	19	6044	22	0822	23	30
40	3490	42	7569	62	5333	30	1197	20	6023	21	0799	23	20
50	3533	43	7632	63	5362	29	1178	19	6001	22	0776	23	10
16 0	0.473576	43	0.537694	62	1.135392	30	2.11159	19	1.85979	22	0.880753	23	**44** 0
10	3619	43	7757	63	5422	30	1140	19	5958	21	0730	23	50
20	3661	42	7819	62	5451	29	1121	19	5936	22	0707	23	40
30	3704	43	7882	63	5481	30	1102	19	5914	22	0684	23	30
40	3747	43	7944	62	5511	30	1083	19	5893	21	0661	23	20
50	3789	42	8007	63	5540	29	1064	19	5871	22	0638	23	10
17 0	0.473832	43	0.538069	62	1.135570	30	2.11045	19	1.85850	21	0.880615	23	**43** 0
10	3875	43	8132	63	5599	29	1026	19	5828	22	0592	23	50
20	3917	42	8194	62	5629	30	1007	19	5806	22	0569	23	40
30	3960	43	8257	63	5659	30	0988	19	5785	21	0546	23	30
40	4003	43	8319	62	5688	29	0969	19	5763	22	0523	23	20
50	4046	43	8382	63	5718	30	0950	19	5742	21	0500	23	10
18 0	0.474088	42	0.538445	63	1.135748	30	2.10931	19	1.85720	22	0.880477	23	**42** 0
10	4131	43	8507	62	5777	29	0912	19	5699	21	0454	23	50
20	4174	43	8570	63	5807	30	0893	19	5677	22	0431	23	40
30	4216	42	8632	62	5837	30	0874	19	5655	22	0408	23	30
40	4259	43	8695	63	5866	29	0855	19	5634	21	0385	23	20
50	4302	43	8757	62	5896	30	0836	19	5612	22	0362	23	10
19 0	0.474344	42	0.538820	63	1.135926	30	2.10817	19	1.85591	21	0.880339	23	**41** 0
10	4387	43	8882	62	5955	29	0798	19	5569	22	0316	23	50
20	4430	43	8945	63	5985	30	0779	19	5548	21	0293	23	40
30	4472	42	9007	62	6015	30	0760	19	5526	22	0270	23	30
40	4515	43	9070	63	6044	29	0741	19	5505	21	0247	23	20
50	4558	43	9133	63	6074	30	0723	18	5483	22	0224	23	10
20 0	0.474600	42	0.539195	62	1.136104	30	2.10704	19	1.85462	21	0.880201	23	**40** 0
	cos		cotg		cosec		sec		tang		sin		

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9	17.1

21	
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8	16.8
9	18.9

23	
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2	4.6
3	6.9
4	9.2
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6	13.8
7	16.1
8	18.4
9	20.7

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8	24.0
9	27.0

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7	30.1
8	34.4
9	38.7

63	
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8	50.4
9	56.7

61°

28°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.474600		0.539195		1.136104		2.10704		1.85462		0.880201		**40′** 0″
10	4643	43	9258	63	6133	29	0685	19	5440	22	0178	23	50
20	4686	43	9320	62	6163	30	0666	19	5419	21	0155	23	40
30	4728	42	9383	63	6193	30	0647	19	5397	22	0132	23	30
40	4771	43	9446	63	6222	29	0628	19	5376	21	0109	23	20
50	4814	43	9508	62	6252	30	0609	19	5354	22	0086	23	10
21 0	0.474856	42	0.539571	63	1.136282	30	2.10590	19	1.85333	21	0.880063	23	**39** 0
10	4899	43	9633	62	6312	30	0571	19	5311	22	0040	23	50
20	4942	43	9696	63	6341	29	0552	19	5290	21	0.880017	23	40
30	4984	42	9759	63	6371	30	0533	19	5268	22	0.879994	23	30
40	5027	43	9821	62	6401	30	0514	19	5247	21	9971	23	20
50	5070	43	9884	63	6431	30	0495	19	5225	22	9948	23	10
22 0	0.475112	42	0.539946	62	1.136460	29	2.10477	18	1.85204	21	0.879925	23	**38** 0
10	5155	43	0.540009	63	6490	30	0458	19	5182	22	9902	23	50
20	5198	43	0072	63	6520	30	0439	19	5161	21	9879	23	40
30	5240	42	0134	62	6550	30	0420	19	5139	22	9856	23	30
40	5283	43	0197	63	6579	29	0401	19	5118	21	9833	23	20
50	5326	43	0259	62	6609	30	0382	19	5096	22	9810	23	10
23 0	0.475368	42	0.540322	63	1.136639	30	2.10363	19	1.85075	21	0.879787	23	**37** 0
10	5411	43	0385	63	6669	30	0344	19	5053	22	9764	23	50
20	5454	43	0447	62	6698	29	0325	19	5032	21	9741	23	40
30	5496	42	0510	63	6728	30	0307	18	5010	22	9718	23	30
40	5539	43	0573	63	6758	30	0288	19	4989	21	9695	23	20
50	5582	43	0635	62	6788	30	0269	19	4968	21	9672	23	10
24 0	0.475624	42	0.540698	63	1.136818	30	2.10250	19	1.84946	22	0.879649	23	**36** 0
10	5667	43	0761	63	6847	29	0231	19	4925	21	9626	23	50
20	5709	42	0823	62	6877	30	0212	19	4903	22	9602	24	40
30	5752	43	0886	63	6907	30	0193	19	4882	21	9579	23	30
40	5795	43	0949	63	6937	30	0175	18	4860	22	9556	23	20
50	5837	42	1011	62	6967	30	0156	19	4839	21	9533	23	10
25 0	0.475880	43	0.541074	63	1.136997	30	2.10137	19	1.84818	21	0.879510	23	**35** 0
10	5923	43	1137	63	7026	29	0118	19	4796	22	9487	23	50
20	5965	42	1199	62	7056	30	0099	19	4775	21	9464	23	40
30	6008	43	1262	63	7086	30	0081	18	4753	22	9441	23	30
40	6051	43	1325	63	7116	30	0062	19	4732	21	9418	23	20
50	6093	42	1387	62	7146	30	0043	19	4711	21	9395	23	10
26 0	0.476136	43	0.541450	63	1.137176	30	2.10024	19	1.84689	22	0.879372	23	**34** 0
10	6179	43	1513	63	7205	29	2.10005	19	4668	21	9349	23	50
20	6221	42	1575	62	7235	30	2.09986	19	4646	22	9326	23	40
30	6264	43	1638	63	7265	30	9968	18	4625	21	9302	24	30
40	6306	42	1701	63	7295	30	9949	19	4604	21	9279	23	20
50	6349	43	1764	63	7325	30	9930	19	4582	22	9256	23	10
27 0	0.476392	43	0.541826	62	1.137355	30	2.09911	19	1.84561	21	0.879233	23	**33** 0
10	6434	42	1889	63	7385	30	9893	18	4540	21	9210	23	50
20	6477	43	1952	63	7414	29	9874	19	4518	22	9187	23	40
30	6520	43	2014	62	7444	30	9855	19	4497	21	9164	23	30
40	6562	42	2077	63	7474	30	9836	19	4476	21	9141	23	20
50	6605	43	2140	63	7504	30	9817	19	4454	22	9118	23	10
28 0	0.476647	42	0.542203	63	1.137534	30	2.09799	18	1.84433	21	0.879095	23	**32** 0
10	6690	43	2265	62	7564	30	9780	19	4412	21	9071	24	50
20	6733	43	2328	63	7594	30	9761	19	4390	22	9048	23	40
30	6775	42	2391	63	7624	30	9742	19	4369	21	9025	23	30
40	6818	43	2454	63	7654	30	9724	18	4348	21	9002	23	20
50	6860	42	2516	62	7684	30	9705	19	4326	22	8979	23	10
29 0	0.476903	43	0.542579	63	1.137714	30	2.09686	19	1.84305	21	0.878956	23	**31** 0
10	6946	43	2642	63	7743	29	9667	19	4284	21	8933	23	50
20	6988	42	2705	63	7773	30	9649	18	4262	22	8910	23	40
30	7031	43	2767	62	7803	30	9630	19	4241	21	8887	23	30
40	7074	43	2830	63	7833	30	9611	19	4220	21	8863	24	20
50	7116	42	2893	63	7863	30	9593	18	4198	22	8840	23	10
30 0	0.477159	43	0.542956	63	1.137893	30	2.09574	19	1.84177	21	0.878817	23	**30** 0
	cos		cotg		cosec		sec		tang		sin		

18	
1	1.8
2	3.6
3	5.4
4	7.2
5	9.0
6	10.8
7	12.6
8	14.4
9	16.2

21	
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

23	
1	2.3
2	4.6
3	6.9
4	9.2
5	11.5
6	13.8
7	16.1
8	18.4
9	20.7

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

63	
1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

61°

28°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.477159		0.542956		1.137893		2.09574		1.84177		0.878817		**30′** 0″
10	7201	42	3018	62	7923	30	9555	19	4156	21	8794	23	50
20	7244	43	3081	63	7953	30	9536	19	4135	21	8771	23	40
30	7287	43	3144	63	7983	30	9518	18	4113	22	8748	23	30
40	7329	42	3207	63	8013	30	9499	19	4092	21	8725	23	20
50	7372	43	3270	63	8043	30	9480	19	4071	21	8701	24	10
31 0	0.477414	42	0.543332	62	1.138073	30	2.09462	18	1.84049	22	0.878678	23	**29** 0
10	7457	43	3395	63	8103	30	9443	19	4028	21	8655	23	50
20	7500	43	3458	63	8133	30	9424	19	4007	21	8632	23	40
30	7542	42	3521	63	8163	30	9406	18	3986	21	8609	23	30
40	7585	43	3584	63	8193	30	9387	19	3964	22	8586	23	20
50	7627	42	3646	62	8223	30	9368	19	3943	21	8563	23	10
32 0	0.477670	43	0.543709	63	1.138253	30	2.09350	18	1.83922	21	0.878539	24	**28** 0
10	7713	43	3772	63	8283	30	9331	19	3901	21	8516	23	50
20	7755	42	3835	63	8313	30	9312	19	3879	22	8493	23	40
30	7798	43	3898	63	8343	30	9294	18	3858	21	8470	23	30
40	7840	42	3961	63	8373	30	9275	19	3837	21	8447	23	20
50	7883	43	4023	62	8403	30	9256	19	3816	21	8424	23	10
33 0	0.477925	42	0.544086	63	1.138433	30	2.09238	18	1.83794	22	0.878400	24	**27** 0
10	7968	43	4149	63	8463	30	9219	19	3773	21	8377	23	50
20	8011	43	4212	63	8493	30	9200	19	3752	21	8354	23	40
30	8053	42	4275	63	8523	30	9182	18	3731	21	8331	23	30
40	8096	43	4338	63	8553	30	9163	19	3710	21	8308	23	20
50	8138	42	4400	62	8583	30	9144	19	3688	22	8285	23	10
34 0	0.478181	43	0.544463	63	1.138613	30	2.09126	18	1.83667	21	0.878261	24	**26** 0
10	8224	43	4526	63	8643	30	9107	19	3646	21	8238	23	50
20	8266	42	4589	63	8673	30	9089	18	3625	21	8215	23	40
30	8309	43	4652	63	8703	30	9070	19	3604	21	8192	23	30
40	8351	42	4715	63	8734	31	9051	19	3582	22	8169	23	20
50	8394	43	4778	63	8764	30	9033	18	3561	21	8145	24	10
35 0	0.478436	42	0.544840	62	1.138794	30	2.09014	19	1.83540	21	0.878122	23	**25** 0
10	8479	43	4903	63	8824	30	8996	18	3519	21	8099	23	50
20	8522	43	4966	63	8854	30	8977	19	3498	21	8076	23	40
30	8564	42	5029	63	8884	30	8958	19	3476	22	8053	23	30
40	8607	43	5092	63	8914	30	8940	18	3455	21	8029	24	20
50	8649	42	5155	63	8944	30	8921	19	3434	21	8006	23	10
36 0	0.478692	43	0.545218	63	1.138974	30	2.08903	18	1.83413	21	0.877983	23	**24** 0
10	8734	42	5281	63	9004	30	8884	19	3392	21	7960	23	50
20	8777	43	5343	62	9034	30	8866	18	3371	21	7937	23	40
30	8820	43	5406	63	9065	31	8847	19	3350	21	7913	24	30
40	8862	42	5469	63	9095	30	8828	19	3328	22	7890	23	20
50	8905	43	5532	63	9125	30	8810	18	3307	21	7867	23	10
37 0	0.478947	42	0.545595	63	1.139155	30	2.08791	19	1.83286	21	0.877844	23	**23** 0
10	8990	43	5658	63	9185	30	8773	18	3265	21	7820	24	50
20	9032	42	5721	63	9215	30	8754	19	3244	21	7797	23	40
30	9075	43	5784	63	9245	30	8736	18	3223	21	7774	23	30
40	9117	42	5847	63	9276	31	8717	19	3202	21	7751	23	20
50	9160	43	5910	63	9306	30	8699	18	3180	22	7728	23	10
38 0	0.479203	43	0.545973	63	1.139336	30	2.08680	19	1.83159	21	0.877704	24	**22** 0
10	9245	42	6036	63	9366	30	8661	19	3138	21	7681	23	50
20	9288	43	6099	62	9396	30	8643	18	3117	21	7658	23	40
30	9330	42	6161	63	9426	30	8624	19	3096	21	7635	23	30
40	9373	43	6224	63	9456	30	8606	18	3075	21	7611	24	20
50	9415	42	6287	63	9487	31	8587	19	3054	21	7588	23	10
39 0	0.479458	43	0.546350	63	1.139517	30	2.08569	18	1.83033	21	0.877565	23	**21** 0
10	9500	42	6413	63	9547	30	8550	19	3012	21	7542	23	50
20	9543	43	6476	63	9577	30	8532	18	2991	21	7518	24	40
30	9585	42	6539	63	9607	30	8513	19	2969	22	7495	23	30
40	9628	43	6602	63	9638	31	8495	18	2948	21	7472	23	20
50	9671	43	6665	63	9668	30	8476	19	2927	21	7449	23	10
40 0	0.479713	42	0.546728	63	1.139698	30	2.08458	18	1.82906	21	0.877425	24	**20** 0
	cos		cotg		cosec		sec		tang		sin		

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

22	
1	2.2
2	4.4
3	6.6
4	8.8
5	11.0
6	13.2
7	15.4
8	17.6
9	19.8

24	
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

30	
1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

62	
1	6.2
2	12.4
3	18.6
4	24.8
5	31.0
6	37.2
7	43.4
8	49.6
9	55.8

63	
1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

61°

28°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.479713		0.546728		1.139698		2.08458		1.82906		0.877425		**20′** 0″
10	9756	43	6791	63	9728	30	8439	19	2885	21	7402	23	50
20	9798	42	6854	63	9758	30	8421	18	2864	21	7379	23	40
30	9841	43	6917	63	9789	31	8402	19	2843	21	7356	23	30
40	9883	42	6980	63	9819	30	8384	18	2822	21	7332	24	20
50	9926	43	7043	63	9849	30	8366	18	2801	21	7309	23	10
41 0	0.479968	42	0.547106	63	1.139879	30	2.08347	19	1.82780	21	0.877286	23	**19** 0
10	0.480011	43	7169	63	9910	31	8329	18	2759	21	7263	23	50
20	0053	42	7232	63	9940	30	8310	19	2738	21	7239	24	40
30	0096	43	7295	63	1.139970	30	8292	18	2717	21	7216	23	30
40	0138	42	7358	63	1.140000	30	8273	19	2696	21	7193	23	20
50	0181	43	7421	63	0031	31	8255	18	2675	21	7169	24	10
42 0	0.480223	42	0.547484	63	1.140061	30	2.08236	19	1.82654	21	0.877146	23	**18** 0
10	0266	43	7547	63	0091	30	8218	18	2633	21	7123	23	50
20	0309	43	7610	63	0121	30	8200	18	2612	21	7100	23	40
30	0351	42	7673	63	0152	31	8181	19	2591	21	7076	24	30
40	0394	43	7736	63	0182	30	8163	18	2570	21	7053	23	20
50	0436	42	7799	63	0212	30	8144	19	2549	21	7030	23	10
43 0	0.480479	43	0.547862	63	1.140242	30	2.08126	18	1.82528	21	0.877006	24	**17** 0
10	0521	42	7925	63	0273	31	8107	19	2507	21	6983	23	50
20	0564	43	7988	63	0303	30	8089	18	2486	21	6960	23	40
30	0606	42	8051	63	0333	30	8071	18	2465	21	6937	23	30
40	0649	43	8114	63	0364	31	8052	19	2444	21	6913	24	20
50	0691	42	8177	63	0394	30	8034	18	2423	21	6890	23	10
44 0	0.480734	43	0.548240	63	1.140424	30	2.08015	19	1.82402	21	0.876867	23	**16** 0
10	0776	42	8303	63	0455	31	7997	18	2381	21	6843	24	50
20	0819	43	8367	64	0485	30	7979	18	2360	21	6820	23	40
30	0861	42	8430	63	0515	30	7960	19	2339	21	6797	23	30
40	0904	43	8493	63	0546	31	7942	18	2318	21	6773	24	20
50	0946	42	8556	63	0576	30	7923	19	2297	21	6750	23	10
45 0	0.480989	43	0.548619	63	1.140606	30	2.07905	18	1.82276	21	0.876727	23	**15** 0
10	1031	42	8682	63	0637	31	7887	18	2255	21	6703	24	50
20	1074	43	8745	63	0667	30	7868	19	2234	21	6680	23	40
30	1116	42	8808	63	0697	30	7850	18	2213	21	6657	23	30
40	1159	43	8871	63	0728	31	7832	18	2192	21	6633	24	20
50	1201	42	8934	63	0758	30	7813	19	2171	21	6610	23	10
46 0	0.481244	43	0.548997	63	1.140788	30	2.07795	18	1.82150	21	0.876587	23	**14** 0
10	1286	42	9060	63	0819	31	7777	18	2129	21	6563	24	50
20	1329	43	9123	63	0849	30	7758	19	2108	21	6540	23	40
30	1371	42	9187	64	0879	30	7740	18	2087	21	6517	23	30
40	1414	43	9250	63	0910	31	7722	18	2067	20	6493	24	20
50	1456	42	9313	63	0940	30	7703	19	2046	21	6470	23	10
47 0	0.481499	43	0.549376	63	1.140971	31	2.07685	18	1.82025	21	0.876447	23	**13** 0
10	1541	42	9439	63	1001	30	7667	18	2004	21	6423	24	50
20	1584	43	9502	63	1031	30	7648	19	1983	21	6400	23	40
30	1626	42	9565	63	1062	31	7630	18	1962	21	6377	23	30
40	1669	43	9628	63	1092	30	7612	18	1941	21	6353	24	20
50	1711	42	9692	64	1123	31	7593	19	1920	21	6330	23	10
48 0	0.481754	43	0.549755	63	1.141153	30	2.07575	18	1.81899	21	0.876307	23	**12** 0
10	1796	42	9818	63	1183	30	7557	18	1878	21	6283	24	50
20	1839	43	9881	63	1214	31	7538	19	1858	20	6260	23	40
30	1881	42	0.549944	63	1244	30	7520	18	1837	21	6237	23	30
40	1924	43	0.550007	63	1275	31	7502	18	1816	21	6213	24	20
50	1966	42	0070	63	1305	30	7483	19	1795	21	6190	23	10
49 0	0.482009	43	0.550134	64	1.141336	31	2.07465	18	1.81774	21	0.876167	23	**11** 0
10	2051	42	0197	63	1366	30	7447	18	1753	21	6143	24	50
20	2094	43	0260	63	1396	30	7429	18	1732	21	6120	23	40
30	2136	42	0323	63	1427	31	7410	19	1711	21	6096	24	30
40	2178	42	0386	63	1457	30	7392	18	1691	20	6073	23	20
50	2221	43	0449	63	1488	31	7374	18	1670	21	6050	23	10
50 0	0.482263	42	0.550513	64	1.141518	30	2.07356	18	1.81649	21	0.876026	24	**10** 0
	cos		cotg		cosec		sec		tang		sin		

18		20		23		30		42		63	
1	1.8	1	2.0	1	2.3	1	3.0	1	4.2	1	6.3
2	3.6	2	4.0	2	4.6	2	6.0	2	8.4	2	12.6
3	5.4	3	6.0	3	6.9	3	9.0	3	12.6	3	18.9
4	7.2	4	8.0	4	9.2	4	12.0	4	16.8	4	25.2
5	9.0	5	10.0	5	11.5	5	15.0	5	21.0	5	31.5
6	10.8	6	12.0	6	13.8	6	18.0	6	25.2	6	37.8
7	12.6	7	14.0	7	16.1	7	21.0	7	29.4	7	44.1
8	14.4	8	16.0	8	18.4	8	24.0	8	33.6	8	50.4
9	16.2	9	18.0	9	20.7	9	27.0	9	37.8	9	56.7

61°

28°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.482263		0.550513		1.141518		2.07356		1.81649		0.876026		**10′** 0″
10	2306	43	0576	63	1549	31	7337	19	1628	21	6003	23	50
20	2348	42	0639	63	1579	30	7319	18	1607	21	5979	24	40
30	2391	43	0702	63	1610	31	7301	18	1586	21	5956	23	30
40	2433	42	0765	63	1640	30	7283	18	1566	20	5933	23	20
50	2476	43	0828	63	1671	31	7264	19	1545	21	5909	24	10
51 0	0.482518	42	0.550892	64	1.141701	30	2.07246	18	1.81524	21	0.875886	23	**9** 0
10	2561	43	0955	63	1732	31	7228	18	1503	21	5863	23	50
20	2603	42	1018	63	1762	30	7210	18	1482	21	5839	24	40
30	2646	43	1081	63	1793	31	7191	19	1461	21	5816	23	30
40	2688	42	1144	63	1823	30	7173	18	1441	20	5792	24	20
50	2731	43	1208	64	1854	31	7155	18	1420	21	5769	23	10
52 0	0.482773	42	0.551271	63	1.141884	30	2.07137	18	1.81399	21	0.875746	23	**8** 0
10	2815	42	1334	63	1915	31	7118	19	1378	21	5722	24	50
20	2858	43	1397	63	1945	30	7100	18	1357	21	5699	23	40
30	2900	42	1460	63	1976	31	7082	18	1337	20	5675	24	30
40	2943	43	1524	64	2006	30	7064	18	1316	21	5652	23	20
50	2985	42	1587	63	2037	31	7046	18	1295	21	5628	24	10
53 0	0.483028	43	0.551650	63	1.142067	30	2.07027	19	1.81274	21	0.875605	23	**7** 0
10	3070	42	1713	63	2098	31	7009	18	1254	20	5582	23	50
20	3113	43	1777	64	2128	30	6991	18	1233	21	5558	24	40
30	3155	42	1840	63	2159	31	6973	18	1212	21	5535	23	30
40	3197	42	1903	63	2190	31	6955	18	1191	21	5511	24	20
50	3240	43	1966	63	2220	30	6937	18	1170	21	5488	23	10
54 0	0.483282	42	0.552030	64	1.142251	31	2.06918	19	1.81150	20	0.875465	23	**6** 0
10	3325	43	2093	63	2281	30	6900	18	1129	21	5441	24	50
20	3367	42	2156	63	2312	31	6882	18	1108	21	5418	23	40
30	3410	43	2219	63	2342	30	6864	18	1087	21	5394	24	30
40	3452	42	2283	64	2373	31	6846	18	1067	20	5371	23	20
50	3495	43	2346	63	2404	31	6828	18	1046	21	5347	24	10
55 0	0.483537	42	0.552409	63	1.142434	30	2.06809	19	1.81025	21	0.875324	23	**5** 0
10	3579	42	2473	64	2465	31	6791	18	1004	21	5300	24	50
20	3622	43	2536	63	2495	30	6773	18	0984	20	5277	23	40
30	3664	42	2599	63	2526	31	6755	18	0963	21	5254	23	30
40	3707	43	2662	63	2557	31	6737	18	0942	21	5230	24	20
50	3749	42	2726	64	2587	30	6719	18	0922	20	5207	23	10
56 0	0.483792	43	0.552789	63	1.142618	31	2.06701	18	1.80901	21	0.875183	24	**4** 0
10	3834	42	2852	63	2649	31	6682	19	0880	21	5160	23	50
20	3876	42	2916	64	2679	30	6664	18	0859	21	5136	24	40
30	3919	43	2979	63	2710	31	6646	18	0839	20	5113	23	30
40	3961	42	3042	63	2740	30	6628	18	0818	21	5089	24	20
50	4004	43	3105	63	2771	31	6610	18	0797	21	5066	23	10
57 0	0.484046	42	0.553169	64	1.142802	31	2.06592	18	1.80777	20	0.875042	24	**3** 0
10	4089	43	3232	63	2832	30	6574	18	0756	21	5019	23	50
20	4131	42	3295	63	2863	31	6556	18	0735	21	4996	23	40
30	4173	42	3359	64	2894	31	6538	18	0715	20	4972	24	30
40	4216	43	3422	63	2924	30	6519	19	0694	21	4949	23	20
50	4258	42	3485	63	2955	31	6501	18	0673	21	4925	24	10
58 0	0.484301	43	0.553549	64	1.142986	31	2.06483	18	1.80653	20	0.874902	23	**2** 0
10	4343	42	3612	63	3016	30	6465	18	0632	21	4878	24	50
20	4386	43	3675	63	3047	31	6447	18	0611	21	4855	23	40
30	4428	42	3739	64	3078	31	6429	18	0591	20	4831	24	30
40	4470	42	3802	63	3108	30	6411	18	0570	21	4808	23	20
50	4513	43	3865	63	3139	31	6393	18	0549	21	4784	24	10
59 0	0.484555	42	0.553929	64	1.143170	31	2.06375	18	1.80529	20	0.874761	23	**1** 0
10	4598	43	3992	63	3200	30	6357	18	0508	21	4737	24	50
20	4640	42	4056	64	3231	31	6339	18	0487	21	4714	23	40
30	4682	42	4119	63	3262	31	6321	18	0467	20	4690	24	30
40	4725	43	4182	63	3293	31	6303	18	0446	21	4667	23	20
50	4767	42	4246	64	3323	30	6285	18	0425	21	4643	24	10
60 0	0.484810	43	0.554309	63	1.143354	31	2.06267	18	1.80405	20	0.874620	23	**0** 0
	cos		cotg		cosec		sec		tang		sin		

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

21	
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

24	
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

64	
1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

61°

29°

0′ 0″	sin		tang		sec		cosec		cotg		cos		60′ 0″
	0.484810		0.554309		1.143354		2.06267		1.80405		0.874620		
10	4852	42	4372	63	3385	31	6248	19	0384	21	4596	24	50
20	4894	42	4436	64	3416	31	6230	18	0364	20	4573	23	40
30	4937	43	4499	63	3446	30	6212	18	0343	21	4549	24	30
40	4979	42	4563	64	3477	31	6194	18	0322	21	4526	23	20
50	5022	43	4626	63	3508	31	6176	18	0302	20	4502	24	10
1 0	0.485064	42	0.554689	63	1.143539	31	2.06158	18	1.80281	21	0.874479	23	59 0
10	5106	42	4753	64	3569	30	6140	18	0260	21	4455	24	50
20	5149	43	4816	63	3600	31	6122	18	0240	20	4432	23	40
30	5191	42	4880	64	3631	31	6104	18	0219	21	4408	24	30
40	5234	43	4943	63	3662	31	6086	18	0199	20	4385	23	20
50	5276	42	5006	63	3692	30	6068	18	0178	21	4361	24	10
2 0	0.485318	42	0.555070	64	1.143723	31	2.06050	18	1.80158	20	0.874338	23	58 0
10	5361	43	5133	63	3754	31	6032	18	0137	21	4314	24	50
20	5403	42	5197	64	3785	31	6014	18	0116	21	4290	24	40
30	5446	43	5260	63	3815	30	5996	18	0096	20	4267	23	30
40	5488	42	5324	64	3846	31	5978	18	0075	21	4243	24	20
50	5530	42	5387	63	3877	31	5960	18	0055	20	4220	23	10
3 0	0.485573	43	0.555450	63	1.143908	31	2.05942	18	1.80034	21	0.874196	24	57 0
10	5615	42	5514	64	3939	31	5924	18	1.80014	20	4173	23	50
20	5657	42	5577	63	3969	30	5906	18	1.79993	21	4149	24	40
30	5700	43	5641	64	4000	31	5888	18	9972	21	4126	23	30
40	5742	42	5704	63	4031	31	5871	17	9952	20	4102	24	20
50	5785	43	5768	64	4062	31	5853	18	9931	21	4079	23	10
4 0	0.485827	42	0.555831	63	1.144093	31	2.05835	18	1.79911	20	0.874055	24	56 0
10	5869	42	5895	64	4124	31	5817	18	9890	21	4031	24	50
20	5912	43	5958	63	4154	30	5799	18	9870	20	4008	23	40
30	5954	42	6021	63	4185	31	5781	18	9849	21	3984	24	30
40	5996	42	6085	64	4216	31	5763	18	9829	20	3961	23	20
50	6039	43	6148	63	4247	31	5745	18	9808	21	3937	24	10
5 0	0.486081	42	0.556212	64	1.144278	31	2.05727	18	1.79788	20	0.873914	23	55 0
10	6124	43	6275	63	4309	31	5709	18	9767	21	3890	24	50
20	6166	42	6339	64	4340	31	5691	18	9747	20	3867	23	40
30	6208	42	6402	63	4370	30	5673	18	9726	21	3843	24	30
40	6251	43	6466	64	4401	31	5655	18	9706	20	3819	24	20
50	6293	42	6529	63	4432	31	5637	18	9685	21	3796	23	10
6 0	0.486335	42	0.556593	64	1.144463	31	2.05619	18	1.79665	20	0.873772	24	54 0
10	6378	43	6656	63	4494	31	5602	17	9644	21	3749	23	50
20	6420	42	6720	64	4525	31	5584	18	9624	20	3725	24	40
30	6462	42	6783	63	4556	31	5566	18	9603	21	3701	24	30
40	6505	43	6847	64	4587	31	5548	18	9583	20	3678	23	20
50	6547	42	6910	63	4617	30	5530	18	9562	21	3654	24	10
7 0	0.486590	43	0.556974	64	1.144648	31	2.05512	18	1.79542	20	0.873631	23	53 0
10	6632	42	7037	63	4679	31	5494	18	9521	21	3607	24	50
20	6674	42	7101	64	4710	31	5476	18	9501	20	3584	23	40
30	6717	43	7165	64	4741	31	5458	18	9480	21	3560	24	30
40	6759	42	7228	63	4772	31	5440	18	9460	20	3536	24	20
50	6801	42	7292	64	4803	31	5423	17	9439	21	3513	23	10
8 0	0.486844	43	0.557355	63	1.144834	31	2.05405	18	1.79419	20	0.873489	24	52 0
10	6886	42	7419	64	4865	31	5387	18	9398	21	3466	23	50
20	6928	42	7482	63	4896	31	5369	18	9378	20	3442	24	40
30	6971	43	7546	64	4927	31	5351	18	9357	21	3418	24	30
40	7013	42	7609	63	4958	31	5333	18	9337	20	3395	23	20
50	7055	42	7673	64	4989	31	5315	18	9317	20	3371	24	10
9 0	0.487098	43	0.557736	63	1.145020	31	2.05298	17	1.79296	21	0.873347	24	51 0
10	7140	42	7800	64	5051	31	5280	18	9276	20	3324	23	50
20	7182	42	7864	64	5082	31	5262	18	9255	21	3300	24	40
30	7225	43	7927	63	5113	31	5244	18	9235	20	3277	23	30
40	7267	42	7991	64	5143	30	5226	18	9214	21	3253	24	20
50	7309	42	8054	63	5174	31	5208	18	9194	20	3229	24	10
10 0	0.487352	43	0.558118	64	1.145205	31	2.05191	17	1.79174	20	0.873206	23	50 0
	cos		cotg		cosec		sec		tang		sin		

17	
1	1.7
2	3.4
3	5.1
4	6.8
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6	10.2
7	11.9
8	13.6
9	15.3

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

21	
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

24	
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

31	
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2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

63	
1	6.3
2	12.6
3	18.9
4	25.2
5	31.5
6	37.8
7	44.1
8	50.4
9	56.7

60°

29°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.487352		0.558118		1.145205		2.05191		1.79174		0.873206		**50′** 0″
10	7394	42	8181	63	5236	31	5173	18	9153	21	3182	24	50
20	7436	42	8245	64	5267	31	5155	18	9133	20	3158	24	40
30	7479	43	8309	64	5298	31	5137	18	9112	21	3135	23	30
40	7521	42	8372	63	5329	31	5119	18	9092	20	3111	24	20
50	7563	42	8436	64	5360	31	5102	17	9072	20	3088	23	10
11 0	0.487606	43	0.558499	63	1.145391	31	2.05084	18	1.79051	21	0.873064	24	**49** 0
10	7648	42	8563	64	5422	31	5066	18	9031	20	3040	24	50
20	7690	42	8627	64	5454	32	5048	18	9010	21	3017	23	40
30	7733	43	8690	63	5485	31	5030	18	8990	20	2993	24	30
40	7775	42	8754	64	5516	31	5013	17	8970	20	2969	24	20
50	7817	42	8817	63	5547	31	4995	18	8949	21	2946	23	10
12 0	0.487860	43	0.558881	64	1.145578	31	2.04977	18	1.78929	20	0.872922	24	**48** 0
10	7902	42	8945	64	5609	31	4959	18	8909	20	2898	24	50
20	7944	42	9008	63	5640	31	4941	18	8888	21	2875	23	40
30	7987	43	9072	64	5671	31	4924	17	8868	20	2851	24	30
40	8029	42	9136	64	5702	31	4906	18	8847	21	2827	24	20
50	8071	42	9199	63	5733	31	4888	18	8827	20	2804	23	10
13 0	0.488114	43	0.559263	64	1.145764	31	2.04870	18	1.78807	20	0.872780	24	**47** 0
10	8156	42	9327	64	5795	31	4853	17	8786	21	2756	24	50
20	8198	42	9390	63	5826	31	4835	18	8766	20	2733	23	40
30	8240	42	9454	64	5857	31	4817	18	8746	20	2709	24	30
40	8283	43	9518	64	5888	31	4799	18	8725	21	2685	24	20
50	8325	42	9581	63	5919	31	4782	17	8705	20	2662	23	10
14 0	0.488367	42	0.559645	64	1.145950	31	2.04764	18	1.78685	20	0.872638	24	**46** 0
10	8410	43	9709	64	5982	32	4746	18	8664	21	2614	24	50
20	8452	42	9772	63	6013	31	4728	18	8644	20	2591	23	40
30	8494	42	9836	64	6044	31	4711	17	8624	20	2567	24	30
40	8537	43	9900	64	6075	31	4693	18	8603	21	2543	24	20
50	8579	42	0.559963	63	6106	31	4675	18	8583	20	2520	23	10
15 0	0.488621	42	0.560027	64	1.146137	31	2.04657	18	1.78563	20	0.872496	24	**45** 0
10	8664	43	0091	64	6168	31	4640	17	8543	20	2472	24	50
20	8706	42	0154	63	6199	31	4622	18	8522	21	2449	23	40
30	8748	42	0218	64	6230	31	4604	18	8502	20	2425	24	30
40	8790	42	0282	64	6262	32	4587	17	8482	20	2401	24	20
50	8833	43	0345	63	6293	31	4569	18	8461	21	2378	23	10
16 0	0.488875	42	0.560409	64	1.146324	31	2.04551	18	1.78441	20	0.872354	24	**44** 0
10	8917	42	0473	64	6355	31	4534	17	8421	20	2330	24	50
20	8960	43	0537	64	6386	31	4516	18	8401	20	2306	24	40
30	9002	42	0600	63	6417	31	4498	18	8380	21	2283	23	30
40	9044	42	0664	64	6448	31	4481	17	8360	20	2259	24	20
50	9086	42	0728	64	6480	32	4463	18	8340	20	2235	24	10
17 0	0.489129	43	0.560791	63	1.146511	31	2.04445	18	1.78319	21	0.872212	23	**43** 0
10	9171	42	0855	64	6542	31	4427	18	8299	20	2188	24	50
20	9213	42	0919	64	6573	31	4410	17	8279	20	2164	24	40
30	9256	43	0983	64	6604	31	4392	18	8259	20	2140	24	30
40	9298	42	1046	63	6636	32	4374	18	8238	21	2117	23	20
50	9340	42	1110	64	6667	31	4357	17	8218	20	2093	24	10
18 0	0.489382	42	0.561174	64	1.146698	31	2.04339	18	1.78198	20	0.872069	24	**42** 0
10	9425	43	1238	64	6729	31	4322	17	8178	20	2046	23	50
20	9467	42	1301	63	6760	31	4304	18	8157	21	2022	24	40
30	9509	42	1365	64	6792	32	4286	18	8137	20	1998	24	30
40	9552	43	1429	64	6823	31	4269	17	8117	20	1974	24	20
50	9594	42	1493	64	6854	31	4251	18	8097	20	1951	23	10
19 0	0.489636	42	0.561556	63	1.146885	31	2.04233	18	1.78077	20	0.871927	24	**41** 0
10	9678	42	1620	64	6916	31	4216	17	8056	21	1903	24	50
20	9721	43	1684	64	6948	32	4198	18	8036	20	1879	24	40
30	9763	42	1748	64	6979	31	4180	18	8016	20	1856	23	30
40	9805	42	1811	63	7010	31	4163	17	7996	20	1832	24	20
50	9847	42	1875	64	7041	31	4145	18	7975	21	1808	24	10
20 0	0.489890	43	0.561939	64	1.147073	32	2.04128	17	1.77955	20	0.871784	24	**40** 0
	cos		cotg		cosec		sec		tang		sin		

18		20		23		30		32		43		64	
1	1.8	1	2.0	1	2.3	1	3.0	1	3.2	1	4.3	1	6.4
2	3.6	2	4.0	2	4.6	2	6.0	2	6.4	2	8.6	2	12.8
3	5.4	3	6.0	3	6.9	3	9.0	3	9.6	3	12.9	3	19.2
4	7.2	4	8.0	4	9.2	4	12.0	4	12.8	4	17.2	4	25.6
5	9.0	5	10.0	5	11.5	5	15.0	5	16.0	5	21.5	5	32.0
6	10.8	6	12.0	6	13.8	6	18.0	6	19.2	6	25.8	6	38.4
7	12.6	7	14.0	7	16.1	7	21.0	7	22.4	7	30.1	7	44.8
8	14.4	8	16.0	8	18.4	8	24.0	8	25.6	8	34.4	8	51.2
9	16.2	9	18.0	9	20.7	9	27.0	9	28.8	9	38.7	9	57.6

60°

29°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.489890		0.561939		1.147073		2.04128		1.77955		0.871784		**40′** 0″
10	9932	42	2003	64	7104	31	4110	18	7935	20	1761	23	50
20	0.489974	42	2067	64	7135	31	4092	18	7915	20	1737	24	40
30	0.490017	43	2130	63	7166	31	4075	17	7895	20	1713	24	30
40	0059	42	2194	64	7198	32	4057	18	7874	21	1689	24	20
50	0101	42	2258	64	7229	31	4040	17	7854	20	1666	23	10
21 0	0.490143	42	0.562322	64	1.147260	31	2.04022	18	1.77834	20	0.871642	24	**39** 0
10	0186	43	2386	64	7291	31	4004	18	7814	20	1618	24	50
20	0228	42	2450	64	7323	32	3987	17	7794	20	1594	24	40
30	0270	42	2513	63	7354	31	3969	18	7774	20	1571	23	30
40	0312	42	2577	64	7385	31	3952	17	7753	21	1547	24	20
50	0355	43	2641	64	7417	32	3934	18	7733	20	1523	24	10
22 0	0.490397	42	0.562705	64	1.147448	31	2.03916	18	1.77713	20	0.871499	24	**38** 0
10	0439	42	2769	64	7479	31	3899	17	7693	20	1475	24	50
20	0481	42	2832	63	7511	32	3881	18	7673	20	1452	23	40
30	0524	43	2896	64	7542	31	3864	17	7653	20	1428	24	30
40	0566	42	2960	64	7573	31	3846	18	7632	21	1404	24	20
50	0608	42	3024	64	7604	31	3829	17	7612	20	1380	24	10
23 0	0.490650	42	0.563088	64	1.147636	32	2.03811	18	1.77592	20	0.871357	23	**37** 0
10	0693	43	3152	64	7667	31	3794	17	7572	20	1333	24	50
20	0735	42	3216	64	7698	31	3776	18	7552	20	1309	24	40
30	0777	42	3279	63	7730	32	3759	17	7532	20	1285	24	30
40	0819	42	3343	64	7761	31	3741	18	7512	20	1261	24	20
50	0862	43	3407	64	7793	32	3723	18	7492	20	1238	23	10
24 0	0.490904	42	0.563471	64	1.147824	31	2.03706	17	1.77471	21	0.871214	24	**36** 0
10	0946	42	3535	64	7855	31	3688	18	7451	20	1190	24	50
20	0988	42	3599	64	7887	32	3671	17	7431	20	1166	24	40
30	1030	42	3663	64	7918	31	3653	18	7411	20	1142	24	30
40	1073	43	3727	64	7949	31	3636	17	7391	20	1119	23	20
50	1115	42	3790	63	7981	32	3618	18	7371	20	1095	24	10
25 0	0.491157	42	0.563854	64	1.148012	31	2.03601	17	1.77351	20	0.871071	24	**35** 0
10	1199	42	3918	64	8043	31	3583	18	7331	20	1047	24	50
20	1242	43	3982	64	8075	32	3566	17	7311	20	1023	24	40
30	1284	42	4046	64	8106	31	3548	18	7290	21	1000	23	30
40	1326	42	4110	64	8138	32	3531	17	7270	20	0976	24	20
50	1368	42	4174	64	8169	31	3513	18	7250	20	0952	24	10
26 0	0.491411	43	0.564238	64	1.148200	31	2.03496	17	1.77230	20	0.870928	24	**34** 0
10	1453	42	4302	64	8232	32	3478	18	7210	20	0904	24	50
20	1495	42	4366	64	8263	31	3461	17	7190	20	0880	24	40
30	1537	42	4430	64	8295	32	3443	18	7170	20	0857	23	30
40	1579	42	4493	63	8326	31	3426	17	7150	20	0833	24	20
50	1622	43	4557	64	8358	32	3408	18	7130	20	0809	24	10
27 0	0.491664	42	0.564621	64	1.148389	31	2.03391	17	1.77110	20	0.870785	24	**33** 0
10	1706	42	4685	64	8420	31	3374	17	7090	20	0761	24	50
20	1748	42	4749	64	8452	32	3356	18	7070	20	0737	24	40
30	1790	42	4813	64	8483	31	3339	17	7050	20	0714	23	30
40	1833	43	4877	64	8515	32	3321	18	7030	20	0690	24	20
50	1875	42	4941	64	8546	31	3304	17	7010	20	0666	24	10
28 0	0.491917	42	0.565005	64	1.148578	32	2.03286	18	1.76990	20	0.870642	24	**32** 0
10	1959	42	5069	64	8609	31	3269	17	6970	20	0618	24	50
20	2002	43	5133	64	8641	32	3251	18	6950	20	0594	24	40
30	2044	42	5197	64	8672	31	3234	17	6929	21	0570	24	30
40	2086	42	5261	64	8704	32	3217	17	6909	20	0547	23	20
50	2128	42	5325	64	8735	31	3199	18	6889	20	0523	24	10
29 0	0.492170	42	0.565389	64	1.148767	32	2.03182	17	1.76869	20	0.870499	24	**31** 0
10	2213	43	5453	64	8798	31	3164	18	6849	20	0475	24	50
20	2255	42	5517	64	8830	32	3147	17	6829	20	0451	24	40
30	2297	42	5581	64	8861	31	3129	18	6809	20	0427	24	30
40	2339	42	5645	64	8893	32	3112	17	6789	20	0403	24	20
50	2381	42	5709	64	8924	31	3095	17	6769	20	0380	23	10
30 0	0.492424	43	0.565773	64	1.148956	32	2.03077	18	1.76749	20	0.870356	24	**30** 0
	cos		cotg		cosec		sec		tang		sin		

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8	34.4
9	38.7

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8	51.2
9	57.6

60°

29°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.492424		0.565773		1.148956		2.03077		1.76749		0.870356		**30′** 0″
10	2466	42	5837	64	8987	31	3060	17	6729	20	0332	24	50
20	2508	42	5901	64	9019	32	3042	18	6709	20	0308	24	40
30	2550	42	5965	64	9050	31	3025	17	6689	20	0284	24	30
40	2592	42	6029	64	9082	32	3008	17	6669	20	0260	24	20
50	2635	43	6093	64	9113	31	2990	18	6649	20	0236	24	10
31 0	0.492677	42	0.566157	64	1.149145	32	2.02973	17	1.76629	20	0.870212	24	**29** 0
10	2719	42	6221	64	9176	31	2955	18	6610	19	0189	23	50
20	2761	42	6285	64	9208	32	2938	17	6590	20	0165	24	40
30	2803	42	6349	64	9239	31	2921	17	6570	20	0141	24	30
40	2845	42	6413	64	9271	32	2903	18	6550	20	0117	24	20
50	2888	43	6477	64	9302	31	2886	17	6530	20	0093	24	10
32 0	0.492930	42	0.566541	64	1.149334	32	2.02869	17	1.76510	20	0.870069	24	**28** 0
10	2972	42	6605	64	9366	32	2851	18	6490	20	0045	24	50
20	3014	42	6669	64	9397	31	2834	17	6470	20	0.870021	24	40
30	3056	42	6733	64	9429	32	2817	17	6450	20	0.869997	24	30
40	3099	43	6797	64	9460	31	2799	18	6430	20	9973	24	20
50	3141	42	6861	64	9492	32	2782	17	6410	20	9950	23	10
33 0	0.493183	42	0.566925	64	1.149524	32	2.02765	17	1.76390	20	0.869926	24	**27** 0
10	3225	42	6989	64	9555	31	2747	18	6370	20	9902	24	50
20	3267	42	7053	64	9587	32	2730	17	6350	20	9878	24	40
30	3309	42	7118	65	9618	31	2713	17	6330	20	9854	24	30
40	3352	43	7182	64	9650	32	2695	18	6310	20	9830	24	20
50	3394	42	7246	64	9682	32	2678	17	6290	20	9806	24	10
34 0	0.493436	42	0.567310	64	1.149713	31	2.02661	17	1.76271	19	0.869782	24	**26** 0
10	3478	42	7374	64	9745	32	2643	18	6251	20	9758	24	50
20	3520	42	7438	64	9776	31	2626	17	6231	20	9734	24	40
30	3562	42	7502	64	9808	32	2609	17	6211	20	9710	24	30
40	3605	43	7566	64	9840	32	2591	18	6191	20	9686	24	20
50	3647	42	7630	64	9871	31	2574	17	6171	20	9663	23	10
35 0	0.493689	42	0.567694	64	1.149903	32	2.02557	17	1.76151	20	0.869639	24	**25** 0
10	3731	42	7758	64	9935	32	2539	18	6131	20	9615	24	50
20	3773	42	7823	65	9966	31	2522	17	6111	20	9591	24	40
30	3815	42	7887	64	1.149998	32	2505	17	6091	20	9567	24	30
40	3858	43	7951	64	1.150030	32	2488	17	6072	19	9543	24	20
50	3900	42	8015	64	0061	31	2470	18	6052	20	9519	24	10
36 0	0.493942	42	0.568079	64	1.150093	32	2.02453	17	1.76032	20	0.869495	24	**24** 0
10	3984	42	8143	64	0125	32	2436	17	6012	20	9471	24	50
20	4026	42	8207	64	0156	31	2418	18	5992	20	9447	24	40
30	4068	42	8271	64	0188	32	2401	17	5972	20	9423	24	30
40	4110	42	8336	65	0220	32	2384	17	5952	20	9399	24	20
50	4153	43	8400	64	0251	31	2367	17	5933	19	9375	24	10
37 0	0.494195	42	0.568464	64	1.150283	32	2.02349	18	1.75913	20	0.869351	24	**23** 0
10	4237	42	8528	64	0315	32	2332	17	5893	20	9327	24	50
20	4279	42	8592	64	0347	32	2315	17	5873	20	9303	24	40
30	4321	42	8656	64	0378	31	2298	17	5853	20	9279	24	30
40	4363	42	8721	65	0410	32	2280	18	5833	20	9255	24	20
50	4405	42	8785	64	0442	32	2263	17	5813	20	9231	24	10
38 0	0.494448	43	0.568849	64	1.150473	31	2.02246	17	1.75794	19	0.869207	24	**22** 0
10	4490	42	8913	64	0505	32	2229	17	5774	20	9183	24	50
20	4532	42	8977	64	0537	32	2211	18	5754	20	9159	24	40
30	4574	42	9041	64	0569	32	2194	17	5734	20	9135	24	30
40	4616	42	9106	65	0600	31	2177	17	5714	20	9112	23	20
50	4658	42	9170	64	0632	32	2160	17	5695	19	9088	24	10
39 0	0.494700	42	0.569234	64	1.150664	32	2.02143	17	1.75675	20	0.869064	24	**21** 0
10	4743	43	9298	64	0696	32	2125	18	5655	20	9040	24	50
20	4785	42	9362	64	0727	31	2108	17	5635	20	9016	24	40
30	4827	42	9427	65	0759	32	2091	17	5615	20	8992	24	30
40	4869	42	9491	64	0791	32	2074	17	5595	20	8968	24	20
50	4911	42	9555	64	0823	32	2056	18	5576	19	8944	24	10
40 0	0.494953	42	0.569619	64	1.150854	31	2.02039	17	1.75556	20	0.868920	24	**20** 0
	cos		cotg		cosec		sec		tang		sin		

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63	
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65	
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6	39.0
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8	52.0
9	58.5

60°

29°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.494953		0.569619		1.150854		2.02039		1.75556		0.868920		**20′** 0″
10	4995	42	9683	64	0886	32	2022	17	5536	20	8896	24	50
20	5037	42	9748	65	0918	32	2005	17	5516	20	8872	24	40
30	5080	43	9812	64	0950	32	1988	17	5497	19	8848	24	30
40	5122	42	9876	64	0982	32	1971	17	5477	20	8824	24	20
50	5164	42	0.569940	64	1013	31	1953	18	5457	20	8800	24	10
41 0	0.495206	42	0.570004	64	1.151045	32	2.01936	17	1.75437	20	0.868776	24	**19** 0
10	5248	42	0069	65	1077	32	1919	17	5417	20	8752	24	50
20	5290	42	0133	64	1109	32	1902	17	5398	19	8728	24	40
30	5332	42	0197	64	1141	32	1885	17	5378	20	8704	24	30
40	5374	42	0261	64	1172	31	1867	18	5358	20	8680	24	20
50	5417	43	0326	65	1204	32	1850	17	5338	20	8656	24	10
42 0	0.495459	42	0.570390	64	1.151236	32	2.01833	17	1.75319	19	0.868632	24	**18** 0
10	5501	42	0454	64	1268	32	1816	17	5299	20	8607	25	50
20	5543	42	0518	64	1300	32	1799	17	5279	20	8583	24	40
30	5585	42	0583	65	1332	32	1782	17	5259	20	8559	24	30
40	5627	42	0647	64	1364	32	1765	17	5240	19	8535	24	20
50	5669	42	0711	64	1395	31	1747	18	5220	20	8511	24	10
43 0	0.495711	42	0.570776	65	1.151427	32	2.01730	17	1.75200	20	0.868487	24	**17** 0
10	5753	42	0840	64	1459	32	1713	17	5180	20	8463	24	50
20	5796	43	0904	64	1491	32	1696	17	5161	19	8439	24	40
30	5838	42	0968	64	1523	32	1679	17	5141	20	8415	24	30
40	5880	42	1033	65	1555	32	1662	17	5121	20	8391	24	20
50	5922	42	1097	64	1587	32	1645	17	5102	19	8367	24	10
44 0	0.495964	42	0.571161	64	1.151618	31	2.01628	17	1.75082	20	0.868343	24	**16** 0
10	6006	42	1226	65	1650	32	1610	18	5062	20	8319	24	50
20	6048	42	1290	64	1682	32	1593	17	5042	20	8295	24	40
30	6090	42	1354	64	1714	32	1576	17	5023	19	8271	24	30
40	6132	42	1418	64	1746	32	1559	17	5003	20	8247	24	20
50	6174	42	1483	65	1778	32	1542	17	4983	20	8223	24	10
45 0	0.496217	43	0.571547	64	1.151810	32	2.01525	17	1.74964	19	0.868199	24	**15** 0
10	6259	42	1611	64	1842	32	1508	17	4944	20	8175	24	50
20	6301	42	1676	65	1874	32	1491	17	4924	20	8151	24	40
30	6343	42	1740	64	1906	32	1474	17	4905	19	8127	24	30
40	6385	42	1804	64	1938	32	1457	17	4885	20	8103	24	20
50	6427	42	1869	65	1970	32	1440	17	4865	20	8079	24	10
46 0	0.496469	42	0.571933	64	1.152001	31	2.01422	18	1.74846	19	0.868054	25	**14** 0
10	6511	42	1997	64	2033	32	1405	17	4826	20	8030	24	50
20	6553	42	2062	65	2065	32	1388	17	4806	20	8006	24	40
30	6595	42	2126	64	2097	32	1371	17	4787	19	7982	24	30
40	6637	42	2190	64	2129	32	1354	17	4767	20	7958	24	20
50	6679	42	2255	65	2161	32	1337	17	4747	20	7934	24	10
47 0	0.496722	43	0.572319	64	1.152193	32	2.01320	17	1.74728	19	0.867910	24	**13** 0
10	6764	42	2384	65	2225	32	1303	17	4708	20	7886	24	50
20	6806	42	2448	64	2257	32	1286	17	4688	20	7862	24	40
30	6848	42	2512	64	2289	32	1269	17	4669	19	7838	24	30
40	6890	42	2577	65	2321	32	1252	17	4649	20	7814	24	20
50	6932	42	2641	64	2353	32	1235	17	4629	20	7790	24	10
48 0	0.496974	42	0.572705	64	1.152385	32	2.01218	17	1.74610	19	0.867765	25	**12** 0
10	7016	42	2770	65	2417	32	1201	17	4590	20	7741	24	50
20	7058	42	2834	64	2449	32	1184	17	4571	19	7717	24	40
30	7100	42	2899	65	2481	32	1167	17	4551	20	7693	24	30
40	7142	42	2963	64	2513	32	1150	17	4531	20	7669	24	20
50	7184	42	3027	64	2545	32	1133	17	4512	19	7645	24	10
49 0	0.497226	42	0.573092	65	1.152577	32	2.01116	17	1.74492	20	0.867621	24	**11** 0
10	7268	42	3156	64	2609	32	1099	17	4473	19	7597	24	50
20	7310	42	3221	65	2641	32	1082	17	4453	20	7573	24	40
30	7353	43	3285	64	2673	32	1065	17	4433	20	7549	24	30
40	7395	42	3349	64	2705	32	1048	17	4414	19	7524	25	20
50	7437	42	3414	65	2737	32	1031	17	4394	20	7500	24	10
50 0	0.497479	42	0.573478	64	1.152769	32	2.01014	17	1.74375	19	0.867476	24	**10** 0
	cos		cotg		cosec		sec		tang		sin		

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9	14.4

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9	16.2

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8	16.0
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4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

60°

29°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.497479		0.573478		1.152769		2.01014		1.74375		0.867476		**10′** 0″
10	7521	42	3543	65	2801	32	0997	17	4355	20	7452	24	50
20	7563	42	3607	64	2834	33	0980	17	4335	20	7428	24	40
30	7605	42	3672	65	2866	32	0963	17	4316	19	7404	24	30
40	7647	42	3736	64	2898	32	0946	17	4296	20	7380	24	20
50	7689	42	3800	64	2930	32	0929	17	4277	19	7356	24	10
51 0	0.497731	42	0.573865	65	1.152962	32	2.00912	17	1.74257	20	0.867331	25	**9** 0
10	7773	42	3929	64	2994	32	0895	17	4237	20	7307	24	50
20	7815	42	3994	65	3026	32	0878	17	4218	19	7283	24	40
30	7857	42	4058	64	3058	32	0861	17	4198	20	7259	24	30
40	7899	42	4123	65	3090	32	0844	17	4179	19	7235	24	20
50	7941	42	4187	64	3122	32	0827	17	4159	20	7211	24	10
52 0	0.497983	42	0.574252	65	1.153154	32	2.00810	17	1.74140	19	0.867187	24	**8** 0
10	8025	42	4316	64	3186	32	0793	17	4120	20	7162	25	50
20	8067	42	4381	65	3219	33	0776	17	4101	19	7138	24	40
30	8109	42	4445	64	3251	32	0759	17	4081	20	7114	24	30
40	8151	42	4510	65	3283	32	0742	17	4062	19	7090	24	20
50	8194	43	4574	64	3315	32	0725	17	4042	20	7066	24	10
53 0	0.498236	42	0.574638	64	1.153347	32	2.00708	17	1.74022	20	0.867042	24	**7** 0
10	8278	42	4703	65	3379	32	0691	17	4003	19	7018	24	50
20	8320	42	4767	64	3411	32	0674	17	3983	20	6993	25	40
30	8362	42	4832	65	3443	32	0657	17	3964	19	6969	24	30
40	8404	42	4896	64	3476	33	0641	16	3944	20	6945	24	20
50	8446	42	4961	65	3508	32	0624	17	3925	19	6921	24	10
54 0	0.498488	42	0.575026	65	1.153540	32	2.00607	17	1.73905	20	0.866897	24	**6** 0
10	8530	42	5090	64	3572	32	0590	17	3886	19	6873	24	50
20	8572	42	5155	65	3604	32	0573	17	3866	20	6848	25	40
30	8614	42	5219	64	3636	32	0556	17	3847	19	6824	24	30
40	8656	42	5284	65	3669	33	0539	17	3827	20	6800	24	20
50	8698	42	5348	64	3701	32	0522	17	3808	19	6776	24	10
55 0	0.498740	42	0.575413	65	1.153733	32	2.00505	17	1.73788	20	0.866752	24	**5** 0
10	8782	42	5477	64	3765	32	0488	17	3769	19	6728	24	50
20	8824	42	5542	65	3797	32	0472	16	3749	20	6703	25	40
30	8866	42	5606	64	3830	33	0455	17	3730	19	6679	24	30
40	8908	42	5671	65	3862	32	0438	17	3710	20	6655	24	20
50	8950	42	5735	64	3894	32	0421	17	3691	19	6631	24	10
56 0	0.498992	42	0.575800	65	1.153926	32	2.00404	17	1.73671	20	0.866607	24	**4** 0
10	9034	42	5864	64	3958	32	0387	17	3652	19	6582	25	50
20	9076	42	5929	65	3991	33	0370	17	3633	19	6558	24	40
30	9118	42	5994	65	4023	32	0353	17	3613	20	6534	24	30
40	9160	42	6058	64	4055	32	0337	16	3594	19	6510	24	20
50	9202	42	6123	65	4087	32	0320	17	3574	20	6486	24	10
57 0	0.499244	42	0.576187	64	1.154119	32	2.00303	17	1.73555	19	0.866461	25	**3** 0
10	9286	42	6252	65	4152	33	0286	17	3535	20	6437	24	50
20	9328	42	6316	64	4184	32	0269	17	3516	19	6413	24	40
30	9370	42	6381	65	4216	32	0252	17	3496	20	6389	24	30
40	9412	42	6446	65	4248	32	0235	17	3477	19	6365	24	20
50	9454	42	6510	64	4281	33	0219	16	3457	20	6340	25	10
58 0	0.499496	42	0.576575	65	1.154313	32	2.00202	17	1.73438	19	0.866316	24	**2** 0
10	9538	42	6639	64	4345	32	0185	17	3419	19	6292	24	50
20	9580	42	6704	65	4378	33	0168	17	3399	20	6268	24	40
30	9622	42	6769	65	4410	32	0151	17	3380	19	6243	25	30
40	9664	42	6833	64	4442	32	0134	17	3360	20	6219	24	20
50	9706	42	6898	65	4474	32	0118	16	3341	19	6195	24	10
59 0	0.499748	42	0.576962	64	1.154507	33	2.00101	17	1.73321	20	0.866171	24	**1** 0
10	9790	42	7027	65	4539	32	0084	17	3302	19	6147	24	50
20	9832	42	7092	65	4571	32	0067	17	3283	19	6122	25	40
30	9874	42	7156	64	4604	33	0050	17	3263	20	6098	24	30
40	9916	42	7221	65	4636	32	0034	16	3244	19	6074	24	20
50	0.499958	42	7286	65	4668	32	0017	17	3224	20	6050	24	10
60 0	0.500000	42	0.577350	64	1.154701	33	2.00000	17	1.73205	19	0.866025	25	**0** 0
	cos		cotg		cosec		sec		tang		sin		

17	
1	1.7
2	3.4
3	5.1
4	6.8
5	8.5
6	10.2
7	11.9
8	13.6
9	15.3

19	
1	1.9
2	3.8
3	5.7
4	7.6
5	9.5
6	11.4
7	13.3
8	15.2
9	17.1

24	
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

65	
1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

60°

30°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.500000		0.577350		1.154701		2.000000		1.732051		0.866025		**60′** 0″
10	0042	42	7415	65	4733	32	1.999832	168	1857	194	6001	24	50
20	0084	42	7480	65	4765	32	9664	168	1663	194	5977	24	40
30	0126	42	7544	64	4798	33	9496	168	1469	194	5953	24	30
40	0168	42	7609	65	4830	32	9328	168	1275	194	5928	25	20
50	0210	42	7674	65	4862	32	9161	167	1082	193	5904	24	10
1 0	0.500252	42	0.577738	64	1.154895	33	1.998993	168	1.730888	194	0.865880	24	**59** 0
10	0294	42	7803	65	4927	32	8825	168	0694	194	5856	24	50
20	0336	42	7868	65	4959	32	8657	168	0500	194	5831	25	40
30	0378	42	7932	64	4992	33	8490	167	0307	193	5807	24	30
40	0420	42	7997	65	5024	32	8322	168	1.730113	194	5783	24	20
50	0462	42	8062	65	5056	32	8155	167	1.729920	193	5759	24	10
2 0	0.500504	42	0.578126	64	1.155089	33	1.997987	168	1.729726	194	0.865734	25	**58** 0
10	0546	42	8191	65	5121	32	7820	167	9533	193	5710	24	50
20	0588	42	8256	65	5153	32	7652	168	9339	194	5686	24	40
30	0630	42	8320	64	5186	33	7485	167	9146	193	5662	24	30
40	0672	42	8385	65	5218	32	7317	168	8952	194	5637	25	20
50	0714	42	8450	65	5251	33	7150	167	8759	193	5613	24	10
3 0	0.500756	42	0.578514	64	1.155283	32	1.996982	168	1.728565	194	0.865589	24	**57** 0
10	0798	42	8579	65	5315	32	6815	167	8372	193	5564	25	50
20	0839	41	8644	65	5348	33	6648	167	8179	193	5540	24	40
30	0881	42	8709	65	5380	32	6480	168	7986	193	5516	24	30
40	0923	42	8773	64	5413	33	6313	167	7792	194	5492	24	20
50	0965	42	8838	65	5445	32	6146	167	7599	193	5467	25	10
4 0	0.501007	42	0.578903	65	1.155478	33	1.995979	167	1.727406	193	0.865443	24	**56** 0
10	1049	42	8967	64	5510	32	5812	167	7213	193	5419	24	50
20	1091	42	9032	65	5542	32	5645	168	7020	193	5394	25	40
30	1133	42	9097	65	5575	33	5477	167	6827	193	5370	24	30
40	1175	42	9162	65	5607	32	5310	167	6634	193	5346	24	20
50	1217	42	9226	64	5640	33	5143	167	6441	193	5322	24	10
5 0	0.501259	42	0.579291	65	1.155672	32	1.994976	167	1.726248	193	0.865297	25	**55** 0
10	1301	42	9356	65	5705	33	4809	167	6055	193	5273	24	50
20	1343	42	9421	65	5737	32	4643	166	5862	193	5249	24	40
30	1385	42	9485	64	5770	33	4476	167	5669	193	5224	25	30
40	1427	42	9550	65	5802	32	4309	167	5476	193	5200	24	20
50	1469	42	9615	65	5835	33	4142	167	5283	193	5176	24	10
6 0	0.501511	42	0.579680	65	1.155867	32	1.993975	167	1.725091	192	0.865151	25	**54** 0
10	1553	42	9744	64	5900	33	3809	166	4898	193	5127	24	50
20	1595	42	9809	65	5932	32	3642	167	4705	193	5103	24	40
30	1637	42	9874	65	5964	32	3475	167	4512	193	5078	25	30
40	1679	42	0.579939	65	5997	33	3308	167	4320	192	5054	24	20
50	1720	41	0.580004	65	6030	33	3142	166	4127	193	5030	24	10
7 0	0.501762	42	0.580068	64	1.156062	32	1.992975	167	1.723935	192	0.865006	24	**53** 0
10	1804	42	0133	65	6095	33	2809	166	3742	193	4981	25	50
20	1846	42	0198	65	6127	32	2642	167	3549	193	4957	24	40
30	1888	42	0263	65	6160	33	2476	166	3357	192	4933	24	30
40	1930	42	0328	65	6192	32	2309	167	3165	192	4908	25	20
50	1972	42	0392	64	6225	33	2143	166	2972	193	4884	24	10
8 0	0.502014	42	0.580457	65	1.156257	32	1.991976	167	1.722780	192	0.864860	24	**52** 0
10	2056	42	0522	65	6290	33	1810	166	2587	193	4835	25	50
20	2098	42	0587	65	6322	32	1644	166	2395	192	4811	24	40
30	2140	42	0652	65	6355	33	1477	167	2203	192	4786	25	30
40	2182	42	0717	65	6387	32	1311	166	2011	192	4762	24	20
50	2224	42	0781	64	6420	33	1145	166	1818	193	4738	24	10
9 0	0.502266	42	0.580846	65	1.156452	32	1.990979	166	1.721626	192	0.864713	25	**51** 0
10	2307	41	0911	65	6485	33	0813	166	1434	192	4689	24	50
20	2349	42	0976	65	6518	33	0646	167	1242	192	4665	24	40
30	2391	42	1041	65	6550	32	0480	166	1050	192	4640	25	30
40	2433	42	1106	65	6583	33	0314	166	0858	192	4616	24	20
50	2475	42	1170	64	6615	32	1.990148	166	0666	192	4592	24	10
10 0	0.502517	42	0.581235	65	1.156648	33	1.989982	166	1.720474	192	0.864567	25	**50** 0
	cos		cotg		cosec		sec		tang		sin		

24

1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

41

1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

64

1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

66

1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

165

1	16.5
2	33.0
3	49.5
4	66.0
5	82.5
6	99.0
7	115.5
8	132.0
9	148.5

168

1	16.8
2	33.6
3	50.4
4	67.2
5	84.0
6	100.8
7	117.6
8	134.4
9	151.2

192

1	19.2
2	38.4
3	57.6
4	76.8
5	96.0
6	115.2
7	134.4
8	153.6
9	172.8

59°

30°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.502517		0.581235		1.156648		1.989982		1.720474		0.864567		**50′** 0″
10	2559	42	1300	65	6681	33	9816	166	0282	192	4543	24	50
20	2601	42	1365	65	6713	32	9650	166	1.720090	192	4519	24	40
30	2643	42	1430	65	6746	33	9484	166	1.719898	192	4494	25	30
40	2685	42	1495	65	6778	32	9319	165	9706	192	4470	24	20
50	2727	42	1560	65	6811	33	9153	166	9514	192	4445	25	10
11 0	0.502769	42	0.581625	65	1.156844	33	1.988987	166	1.719322	192	0.864421	24	**49** 0
10	2810	41	1689	64	6876	32	8821	166	9130	192	4397	24	50
20	2852	42	1754	65	6909	33	8655	166	8939	191	4372	25	40
30	2894	42	1819	65	6941	32	8490	165	8747	192	4348	24	30
40	2936	42	1884	65	6974	33	8324	166	8555	192	4324	24	20
50	2978	42	1949	65	7007	33	8158	166	8364	191	4299	25	10
12 0	0.503020	42	0.582014	65	1.157039	32	1.987993	165	1.718172	192	0.864275	24	**48** 0
10	3062	42	2079	65	7072	33	7827	166	7980	192	4250	25	50
20	3104	42	2144	65	7105	33	7662	165	7789	191	4226	24	40
30	3146	42	2209	65	7137	32	7496	166	7597	192	4202	24	30
40	3188	42	2274	65	7170	33	7331	165	7406	191	4177	25	20
50	3229	41	2338	64	7203	33	7165	166	7214	192	4153	24	10
13 0	0.503271	42	0.582403	65	1.157235	32	1.987000	165	1.717023	191	0.864128	25	**47** 0
10	3313	42	2468	65	7268	33	6834	166	6832	191	4104	24	50
20	3355	42	2533	65	7301	33	6669	165	6640	192	4080	24	40
30	3397	42	2598	65	7333	32	6504	165	6449	191	4055	25	30
40	3439	42	2663	65	7366	33	6338	166	6258	191	4031	24	20
50	3481	42	2728	65	7399	33	6173	165	6066	192	4006	25	10
14 0	0.503523	42	0.582793	65	1.157432	33	1.986008	165	1.715875	191	0.863982	24	**46** 0
10	3565	42	2858	65	7464	32	5843	165	5684	191	3958	24	50
20	3606	41	2923	65	7497	33	5678	165	5493	191	3933	25	40
30	3648	42	2988	65	7530	33	5512	166	5302	191	3909	24	30
40	3690	42	3053	65	7562	32	5347	165	5110	192	3884	25	20
50	3732	42	3118	65	7595	33	5182	165	4919	191	3860	24	10
15 0	0.503774	42	0.583183	65	1.157628	33	1.985017	165	1.714728	191	0.863836	24	**45** 0
10	3816	42	3248	65	7661	33	4852	165	4537	191	3811	25	50
20	3858	42	3313	65	7693	32	4687	165	4346	191	3787	24	40
30	3900	42	3378	65	7726	33	4522	165	4155	191	3762	25	30
40	3941	41	3443	65	7759	33	4357	165	3964	191	3738	24	20
50	3983	42	3508	65	7792	33	4192	165	3774	190	3713	25	10
16 0	0.504025	42	0.583573	65	1.157824	32	1.984028	164	1.713583	191	0.863689	24	**44** 0
10	4067	42	3638	65	7857	33	3863	165	3392	191	3664	25	50
20	4109	42	3703	65	7890	33	3698	165	3201	191	3640	24	40
30	4151	42	3768	65	7923	33	3533	165	3010	191	3616	24	30
40	4193	42	3833	65	7955	32	3369	164	2820	190	3591	25	20
50	4235	42	3898	65	7988	33	3204	165	2629	191	3567	24	10
17 0	0.504276	41	0.583963	65	1.158021	33	1.983039	165	1.712438	191	0.863542	25	**43** 0
10	4318	42	4028	65	8054	33	2875	164	2248	190	3518	24	50
20	4360	42	4093	65	8086	32	2710	165	2057	191	3493	25	40
30	4402	42	4158	65	8119	33	2546	164	1866	191	3469	24	30
40	4444	42	4223	65	8152	33	2381	165	1676	190	3444	25	20
50	4486	42	4288	65	8185	33	2216	165	1485	191	3420	24	10
18 0	0.504528	42	0.584353	65	1.158218	33	1.982052	164	1.711295	190	0.863396	24	**42** 0
10	4569	41	4418	65	8251	33	1888	164	1104	191	3371	25	50
20	4611	42	4483	65	8283	32	1723	165	0914	190	3347	24	40
30	4653	42	4548	65	8316	33	1559	164	0724	190	3322	25	30
40	4695	42	4613	65	8349	33	1395	164	0533	191	3298	24	20
50	4737	42	4678	65	8382	33	1230	165	0343	190	3273	25	10
19 0	0.504779	42	0.584743	65	1.158415	33	1.981066	164	1.710153	190	0.863249	24	**41** 0
10	4821	42	4808	65	8447	32	0902	164	1.709962	191	3224	25	50
20	4862	41	4873	65	8480	33	0738	164	9772	190	3200	24	40
30	4904	42	4938	65	8513	33	0573	165	9582	190	3175	25	30
40	4946	42	5003	65	8546	33	0409	164	9392	190	3151	24	20
50	4988	42	5068	65	8579	33	0245	164	9202	190	3126	25	10
20 0	0.505030	42	0.585134	66	1.158612	33	1.980081	164	1.709012	190	0.863102	24	**40** 0
	cos		cotg		cosec		sec		tang		sin		

25	
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

65	
1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

164	
1	16.4
2	32.8
3	49.2
4	65.6
5	82.0
6	98.4
7	114.8
8	131.2
9	147.6

166	
1	16.6
2	33.2
3	49.8
4	66.4
5	83.0
6	99.6
7	116.2
8	132.8
9	149.4

190	
1	19.0
2	38.0
3	57.0
4	76.0
5	95.0
6	114.0
7	133.0
8	152.0
9	171.0

194	
1	19.4
2	38.8
3	58.2
4	77.6
5	97.0
6	116.4
7	135.8
8	155.2
9	174.6

59°

30°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.505030		0.585134		1.158612		1.980081		1.709012		0.863102		**40′** 0″
10	5072	42	5199	65	8645	33	1.979917	164	8822	190	3077	25	50
20	5114	42	5264	65	8678	33	9753	164	8632	190	3053	24	40
30	5155	41	5329	65	8710	32	9589	164	8442	190	3028	25	30
40	5197	42	5394	65	8743	33	9425	164	8252	190	3004	24	20
50	5239	42	5459	65	8776	33	9261	164	8062	190	2979	25	10
21 0	0.505281	42	0.585524	65	1.158809	33	1.979097	164	1.707872	190	0.862955	24	**39** 0
10	5323	42	5589	65	8842	33	8933	164	7682	190	2930	25	50
20	5365	42	5654	65	8875	33	8770	163	7492	190	2906	24	40
30	5406	41	5719	65	8908	33	8606	164	7302	190	2881	25	30
40	5448	42	5785	66	8941	33	8442	164	7112	190	2857	24	20
50	5490	42	5850	65	8974	33	8278	164	6923	189	2832	25	10
22 0	0.505532	42	0.585915	65	1.159007	33	1.978115	163	1.706733	190	0.862808	24	**38** 0
10	5574	42	5980	65	9039	32	7951	164	6543	190	2783	25	50
20	5616	42	6045	65	9072	33	7787	164	6354	189	2759	24	40
30	5657	41	6110	65	9105	33	7624	163	6164	190	2734	25	30
40	5699	42	6175	65	9138	33	7460	164	5974	190	2710	24	20
50	5741	42	6240	65	9171	33	7297	163	5785	189	2685	25	10
23 0	0.505783	42	0.586306	66	1.159204	33	1.977133	164	1.705595	190	0.862661	24	**37** 0
10	5825	42	6371	65	9237	33	6970	163	5406	189	2636	25	50
20	5866	41	6436	65	9270	33	6806	164	5216	190	2612	24	40
30	5908	42	6501	65	9303	33	6643	163	5027	189	2587	25	30
40	5950	42	6566	65	9336	33	6479	164	4837	190	2563	24	20
50	5992	42	6631	65	9369	33	6316	163	4648	189	2538	25	10
24 0	0.506034	42	0.586697	66	1.159402	33	1.976153	163	1.704459	189	0.862514	24	**36** 0
10	6076	42	6762	65	9435	33	5989	164	4269	190	2489	25	50
20	6117	41	6827	65	9468	33	5826	163	4080	189	2465	24	40
30	6159	42	6892	65	9501	33	5663	163	3891	189	2440	25	30
40	6201	42	6957	65	9534	33	5500	163	3702	189	2416	24	20
50	6243	42	7022	65	9567	33	5337	163	3512	190	2391	25	10
25 0	0.506285	42	0.587088	66	1.159600	33	1.975174	163	1.703323	189	0.862366	25	**35** 0
10	6326	41	7153	65	9633	33	5010	164	3134	189	2342	24	50
20	6368	42	7218	65	9666	33	4847	163	2945	189	2317	25	40
30	6410	42	7283	65	9699	33	4684	163	2756	189	2293	24	30
40	6452	42	7348	65	9732	33	4521	163	2567	189	2268	25	20
50	6494	42	7414	66	9765	33	4358	163	2378	189	2244	24	10
26 0	0.506535	41	0.587479	65	1.159798	33	1.974195	163	1.702189	189	0.862219	25	**34** 0
10	6577	42	7544	65	9831	33	4033	162	2000	189	2195	24	50
20	6619	42	7609	65	9864	33	3870	163	1811	189	2170	25	40
30	6661	42	7674	65	9897	33	3707	163	1622	189	2145	25	30
40	6703	42	7740	66	9930	33	3544	163	1433	189	2121	24	20
50	6744	41	7805	65	9963	33	3381	163	1245	188	2096	25	10
27 0	0.506786	42	0.587870	65	1.159996	33	1.973218	163	1.701056	189	0.862072	24	**33** 0
10	6828	42	7935	65	1.160029	33	3056	162	0867	189	2047	25	50
20	6870	42	8001	66	0062	33	2893	163	0678	189	2023	24	40
30	6912	42	8066	65	0095	33	2730	163	0490	188	1998	25	30
40	6953	41	8131	65	0129	34	2568	162	0301	189	1973	25	20
50	6995	42	8196	65	0162	33	2405	163	1.700112	189	1949	24	10
28 0	0.507037	42	0.588262	66	1.160195	33	1.972243	162	1.699924	188	0.861924	25	**32** 0
10	7079	42	8327	65	0228	33	2080	163	9735	189	1900	24	50
20	7121	42	8392	65	0261	33	1918	162	9547	188	1875	25	40
30	7162	41	8457	65	0294	33	1755	163	9358	189	1851	24	30
40	7204	42	8523	66	0327	33	1593	162	9170	188	1826	25	20
50	7246	42	8588	65	0360	33	1430	163	8981	189	1801	25	10
29 0	0.507288	42	0.588653	65	1.160393	33	1.971268	162	1.698793	188	0.861777	24	**31** 0
10	7329	41	8719	66	0426	33	1106	162	8605	188	1752	25	50
20	7371	42	8784	65	0460	34	0943	163	8416	189	1728	24	40
30	7413	42	8849	65	0493	33	0781	162	8228	188	1703	25	30
40	7455	42	8914	65	0526	33	0619	162	8040	188	1678	25	20
50	7497	42	8980	66	0559	33	0457	162	7851	189	1654	24	10
30 0	0.507538	41	0.589045	65	1.160592	33	1.970294	163	1.697663	188	0.861629	25	**30** 0
	cos		cotg		cosec		sec		tang		sin		

24

1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

34

1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

42

1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

66

1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

162

1	16.2
2	32.4
3	48.6
4	64.8
5	81.0
6	97.2
7	113.4
8	129.6
9	145.8

186

1	18.6
2	37.2
3	55.8
4	74.4
5	93.0
6	111.6
7	130.2
8	148.8
9	167.4

188

1	18.8
2	37.6
3	56.4
4	75.2
5	94.0
6	112.8
7	131.6
8	150.4
9	169.2

59°

30°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.507538		0.589045		1.160592		1.970294		1.697663		0.861629		**30′** 0″
10	7580	42	9110	65	0625	33	1.970132	162	7475	188	1605	24	50
20	7622	42	9176	66	0658	33	1.969970	162	7287	188	1580	25	40
30	7664	42	9241	65	0692	34	9808	162	7099	188	1555	25	30
40	7705	41	9306	65	0725	33	9646	162	6911	188	1531	24	20
50	7747	42	9372	66	0758	33	9484	162	6722	189	1506	25	10
31 0	0.507789	42	0.589437	65	1.160791	33	1.969322	162	1.696534	188	0.861481	25	**29** 0
10	7831	42	9502	65	0824	33	9160	162	6346	188	1457	24	50
20	7873	42	9568	66	0857	33	8998	162	6158	188	1432	25	40
30	7914	41	9633	65	0891	34	8836	162	5971	187	1408	24	30
40	7956	42	9698	65	0924	33	8674	162	5783	188	1383	25	20
50	7998	42	9764	66	0957	33	8512	162	5595	188	1358	25	10
32 0	0.508040	42	0.589829	65	1.160990	33	1.968351	161	1.695407	188	0.861334	24	**28** 0
10	8081	41	9894	65	1023	33	8189	162	5219	188	1309	25	50
20	8123	42	0.589960	66	1057	34	8027	162	5031	188	1284	25	40
30	8165	42	0.590025	65	1090	33	7865	162	4843	188	1260	24	30
40	8207	42	0090	65	1123	33	7704	161	4656	187	1235	25	20
50	8248	41	0156	66	1156	33	7542	162	4468	188	1211	24	10
33 0	0.508290	42	0.590221	65	1.161189	33	1.967381	161	1.694280	188	0.861186	25	**27** 0
10	8332	42	0286	65	1223	34	7219	162	4093	187	1161	25	50
20	8374	42	0352	66	1256	33	7057	162	3905	188	1137	24	40
30	8415	41	0417	65	1289	33	6896	161	3718	187	1112	25	30
40	8457	42	0483	66	1322	33	6734	162	3530	188	1087	25	20
50	8499	42	0548	65	1356	34	6573	161	3343	187	1063	24	10
34 0	0.508541	42	0.590613	65	1.161389	33	1.966411	162	1.693155	188	0.861038	25	**26** 0
10	8582	41	0679	66	1422	33	6250	161	2968	187	1013	25	50
20	8624	42	0744	65	1455	33	6089	161	2780	188	0989	24	40
30	8666	42	0810	66	1489	34	5927	162	2593	187	0964	25	30
40	8708	42	0875	65	1522	33	5766	161	2405	188	0939	25	20
50	8749	41	0940	65	1555	33	5605	161	2218	187	0915	24	10
35 0	0.508791	42	0.591006	66	1.161589	34	1.965444	161	1.692031	187	0.860890	25	**25** 0
10	8833	42	1071	65	1622	33	5282	162	1844	187	0865	25	50
20	8874	41	1137	66	1655	33	5121	161	1656	188	0841	24	40
30	8916	42	1202	65	1688	33	4960	161	1469	187	0816	25	30
40	8958	42	1267	65	1722	34	4799	161	1282	187	0791	25	20
50	9000	42	1333	66	1755	33	4638	161	1095	187	0767	24	10
36 0	0.509041	41	0.591398	65	1.161788	33	1.964477	161	1.690908	187	0.860742	25	**24** 0
10	9083	42	1464	66	1822	34	4316	161	0721	187	0717	25	50
20	9125	42	1529	65	1855	33	4155	161	0534	187	0693	24	40
30	9167	42	1595	66	1888	33	3994	161	0347	187	0668	25	30
40	9208	41	1660	65	1922	34	3833	161	1.690160	187	0643	25	20
50	9250	42	1726	66	1955	33	3672	161	1.689973	187	0619	24	10
37 0	0.509292	42	0.591791	65	1.161988	33	1.963511	161	1.689786	187	0.860594	25	**23** 0
10	9333	41	1857	66	2022	34	3350	161	9599	187	0569	25	50
20	9375	42	1922	65	2055	33	3189	161	9412	187	0545	24	40
30	9417	42	1987	65	2088	33	3029	160	9225	187	0520	25	30
40	9459	42	2053	66	2122	34	2868	161	9038	187	0495	25	20
50	9500	41	2118	65	2155	33	2707	161	8851	187	0470	25	10
38 0	0.509542	42	0.592184	66	1.162188	33	1.962546	161	1.688665	186	0.860446	24	**22** 0
10	9584	42	2249	65	2222	34	2386	160	8478	187	0421	25	50
20	9626	42	2315	66	2255	33	2225	161	8291	187	0396	25	40
30	9667	41	2380	65	2288	33	2065	160	8105	186	0372	24	30
40	9709	42	2446	66	2322	34	1904	161	7918	187	0347	25	20
50	9751	42	2511	65	2355	33	1743	161	7731	187	0322	25	10
39 0	0.509792	41	0.592577	66	1.162389	34	1.961583	160	1.687545	186	0.860297	25	**21** 0
10	9834	42	2642	65	2422	33	1422	161	7358	187	0273	24	50
20	9876	42	2708	66	2455	33	1262	160	7172	186	0248	25	40
30	9917	41	2773	65	2489	34	1102	160	6985	187	0223	25	30
40	0.509959	42	2839	66	2522	33	0941	161	6799	186	0199	24	20
50	0.510001	42	2904	65	2556	34	0781	160	6613	186	0174	25	10
40 0	0.510043	42	0.592970	66	1.162589	33	1.960621	160	1.686426	187	0.860149	25	**20** 0
	cos		cotg		cosec		sec		tang		sin		

25	
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

65	
1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

160	
1	16.0
2	32.0
3	48.0
4	64.0
5	80.0
6	96.0
7	112.0
8	128.0
9	144.0

164	
1	16.4
2	32.8
3	49.2
4	65.6
5	82.0
6	98.4
7	114.8
8	131.2
9	147.6

187	
1	18.7
2	37.4
3	56.1
4	74.8
5	93.5
6	112.2
7	130.9
8	149.6
9	168.3

190	
1	19.0
2	38.0
3	57.0
4	76.0
5	95.0
6	114.0
7	133.0
8	152.0
9	171.0

59°

30°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.510043		0.592970		1.162589		1.960621		1.686426		0.860149		**20′** 0″
10	0084	41	3035	65	2622	33	0460	161	6240	186	0124	25	50
20	0126	42	3101	66	2656	34	0300	160	6053	187	0100	24	40
30	0168	42	3167	66	2689	33	1.960140	160	5867	186	0075	25	30
40	0209	41	3232	65	2723	34	1.959980	160	5681	186	0050	25	20
50	0251	42	3298	66	2756	33	9819	161	5495	186	0025	25	10
41 0	0.510293	42	0.593363	65	1.162790	34	1.959659	160	1.685308	187	0.860001	24	**19** 0
10	0334	41	3429	66	2823	33	9499	160	5122	186	0.859976	25	50
20	0376	42	3494	65	2857	34	9339	160	4936	186	9951	25	40
30	0418	42	3560	66	2890	33	9179	160	4750	186	9927	24	30
40	0460	42	3625	65	2924	34	9019	160	4564	186	9902	25	20
50	0501	41	3691	66	2957	33	8859	160	4378	186	9877	25	10
42 0	0.510543	42	0.593757	66	1.162990	33	1.958699	160	1.684192	186	0.859852	25	**18** 0
10	0585	42	3822	65	3024	34	8539	160	4006	186	9828	24	50
20	0626	41	3888	66	3057	33	8379	160	3820	186	9803	25	40
30	0668	42	3953	65	3091	34	8220	159	3634	186	9778	25	30
40	0710	42	4019	66	3124	33	8060	160	3448	186	9753	25	20
50	0751	41	4084	65	3158	34	7900	160	3262	186	9728	25	10
43 0	0.510793	42	0.594150	66	1.163191	33	1.957740	160	1.683077	185	0.859704	24	**17** 0
10	0835	42	4216	66	3225	34	7580	160	2891	186	9679	25	50
20	0876	41	4281	65	3258	33	7421	159	2705	186	9654	25	40
30	0918	42	4347	66	3292	34	7261	160	2519	186	9629	25	30
40	0960	42	4412	65	3325	33	7101	160	2333	186	9605	24	20
50	1001	41	4478	66	3359	34	6942	159	2148	185	9580	25	10
44 0	0.511043	42	0.594544	66	1.163393	34	1.956782	160	1.681962	186	0.859555	25	**16** 0
10	1085	42	4609	65	3426	33	6623	159	1777	185	9530	25	50
20	1126	41	4675	66	3460	34	6463	160	1591	186	9506	24	40
30	1168	42	4741	66	3493	33	6304	159	1405	186	9481	25	30
40	1210	42	4806	65	3527	34	6144	160	1220	185	9456	25	20
50	1251	41	4872	66	3560	33	5985	159	1034	186	9431	25	10
45 0	0.511293	42	0.594937	65	1.163594	34	1.955825	160	1.680849	185	0.859406	25	**15** 0
10	1335	42	5003	66	3627	33	5666	159	0663	186	9382	24	50
20	1376	41	5069	66	3661	34	5507	159	0478	185	9357	25	40
30	1418	42	5134	65	3695	34	5347	160	0293	185	9332	25	30
40	1460	42	5200	66	3728	33	5188	159	1.680107	186	9307	25	20
50	1501	41	5266	66	3762	34	5029	159	1.679922	185	9282	25	10
46 0	0.511543	42	0.595331	65	1.163795	33	1.954870	159	1.679737	185	0.859258	24	**14** 0
10	1585	42	5397	66	3829	34	4710	160	9551	186	9233	25	50
20	1626	41	5463	66	3862	33	4551	159	9366	185	9208	25	40
30	1668	42	5528	65	3896	34	4392	159	9181	185	9183	25	30
40	1710	42	5594	66	3930	34	4233	159	8996	185	9158	25	20
50	1751	41	5660	66	3963	33	4074	159	8811	185	9134	24	10
47 0	0.511793	42	0.595725	65	1.163997	34	1.953915	159	1.678626	185	0.859109	25	**13** 0
10	1835	42	5791	66	4031	34	3756	159	8441	185	9084	25	50
20	1876	41	5857	66	4064	33	3597	159	8255	186	9059	25	40
30	1918	42	5923	66	4098	34	3438	159	8070	185	9034	25	30
40	1960	42	5988	65	4131	33	3279	159	7885	185	9010	24	20
50	2001	41	6054	66	4165	34	3120	159	7701	184	8985	25	10
48 0	0.512043	42	0.596120	66	1.164199	34	1.952961	159	1.677516	185	0.858960	25	**12** 0
10	2085	42	6185	65	4232	33	2803	158	7331	185	8935	25	50
20	2126	41	6251	66	4266	34	2644	159	7146	185	8910	25	40
30	2168	42	6317	66	4300	34	2485	159	6961	185	8885	25	30
40	2209	41	6383	66	4333	33	2326	159	6776	185	8861	24	20
50	2251	42	6448	65	4367	34	2168	158	6591	185	8836	25	10
49 0	0.512293	42	0.596514	66	1.164401	34	1.952009	159	1.676407	184	0.858811	25	**11** 0
10	2334	41	6580	66	4434	33	1850	159	6222	185	8786	25	50
20	2376	42	6645	65	4468	34	1692	158	6037	185	8761	25	40
30	2418	42	6711	66	4502	34	1533	159	5853	184	8736	25	30
40	2459	41	6777	66	4535	33	1375	158	5668	185	8712	24	20
50	2501	42	6843	66	4569	34	1216	159	5483	185	8687	25	10
50 0	0.512543	42	0.596908	65	1.164603	34	1.951058	158	1.675299	184	0.858662	25	**10** 0
	cos		cotg		cosec		sec		tang		sin		

24

1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

33

1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

41

1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

65

1	6.5
2	13.0
3	19.5
4	26.0
5	32.5
6	39.0
7	45.5
8	52.0
9	58.5

156

1	15.6
2	31.2
3	46.8
4	62.4
5	78.0
6	93.6
7	109.2
8	124.8
9	140.4

160

1	16.0
2	32.0
3	48.0
4	64.0
5	80.0
6	96.0
7	112.0
8	128.0
9	144.0

183

1	18.3
2	36.6
3	54.9
4	73.2
5	91.5
6	109.8
7	128.1
8	146.4
9	164.7

185

1	18.5
2	37.0
3	55.5
4	74.0
5	92.5
6	111.0
7	129.5
8	148.0
9	166.5

59°

30°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.512543		0.596908		1.164603		1.951058		1.675299		0.858662		**10′** 0″
10	2584	41	6974	66	4637	34	0899	159	5114	185	8637	25	50
20	2626	42	7040	66	4670	33	0741	158	4930	184	8612	25	40
30	2667	41	7106	66	4704	34	0582	159	4745	185	8587	25	30
40	2709	42	7171	65	4738	34	0424	158	4561	184	8562	25	20
50	2751	42	7237	66	4771	33	0266	158	4376	185	8538	24	10
51 0	0.512792	41	0.597303	66	1.164805	34	1.950107	159	1.674192	184	0.858513	25	**9** 0
10	2834	42	7369	66	4839	34	1.949949	158	4008	184	8488	25	50
20	2875	41	7435	66	4873	34	9791	158	3823	185	8463	25	40
30	2917	42	7500	65	4906	33	9633	158	3639	184	8438	25	30
40	2959	42	7566	66	4940	34	9475	158	3455	184	8413	25	20
50	3000	41	7632	66	4974	34	9316	159	3271	184	8388	25	10
52 0	0.513042	42	0.597698	66	1.165008	34	1.949158	158	1.673086	185	0.858364	24	**8** 0
10	3084	42	7764	66	5041	33	9000	158	2902	184	8339	25	50
20	3125	41	7829	65	5075	34	8842	158	2718	184	8314	25	40
30	3167	42	7895	66	5109	34	8684	158	2534	184	8289	25	30
40	3208	41	7961	66	5143	34	8526	158	2350	184	8264	25	20
50	3250	42	8027	66	5176	33	8368	158	2166	184	8239	25	10
53 0	0.513292	42	0.598093	66	1.165210	34	1.948210	158	1.671982	184	0.858214	25	**7** 0
10	3333	41	8158	65	5244	34	8052	158	1798	184	8189	25	50
20	3375	42	8224	66	5278	34	7894	158	1614	184	8164	25	40
30	3416	41	8290	66	5312	34	7737	157	1430	184	8140	24	30
40	3458	42	8356	66	5345	33	7579	158	1246	184	8115	25	20
50	3500	42	8422	66	5379	34	7421	158	1062	184	8090	25	10
54 0	0.513541	41	0.598488	66	1.165413	34	1.947263	158	1.670878	184	0.858065	25	**6** 0
10	3583	42	8554	66	5447	34	7106	157	0694	184	8040	25	50
20	3624	41	8619	65	5481	34	6948	158	0511	183	8015	25	40
30	3666	42	8685	66	5514	33	6790	158	0327	184	7990	25	30
40	3708	42	8751	66	5548	34	6633	157	1.670143	184	7965	25	20
50	3749	41	8817	66	5582	34	6475	158	1.669959	184	7940	25	10
55 0	0.513791	42	0.598883	66	1.165616	34	1.946317	158	1.669776	183	0.857915	25	**5** 0
10	3832	41	8949	66	5650	34	6160	157	9592	184	7891	24	50
20	3874	42	9015	66	5684	34	6002	158	9409	183	7866	25	40
30	3916	42	9080	65	5718	34	5845	157	9225	184	7841	25	30
40	3957	41	9146	66	5751	33	5687	158	9041	184	7816	25	20
50	3999	42	9212	66	5785	34	5530	157	8858	183	7791	25	10
56 0	0.514040	41	0.599278	66	1.165819	34	1.945373	157	1.668674	184	0.857766	25	**4** 0
10	4082	42	9344	66	5853	34	5215	158	8491	183	7741	25	50
20	4124	42	9410	66	5887	34	5058	157	8307	184	7716	25	40
30	4165	41	9476	66	5921	34	4901	157	8124	183	7691	25	30
40	4207	42	9542	66	5955	34	4743	158	7941	183	7666	25	20
50	4248	41	9608	66	5989	34	4586	157	7757	184	7641	25	10
57 0	0.514290	42	0.599674	66	1.166022	33	1.944429	157	1.667574	183	0.857616	25	**3** 0
10	4331	41	9739	65	6056	34	4272	157	7391	183	7591	25	50
20	4373	42	9805	66	6090	34	4114	158	7208	183	7567	24	40
30	4415	42	9871	66	6124	34	3957	157	7024	184	7542	25	30
40	4456	41	0.599937	66	6158	34	3800	157	6841	183	7517	25	20
50	4498	42	0.600003	66	6192	34	3643	157	6658	183	7492	25	10
58 0	0.514539	41	0.600069	66	1.166226	34	1.943486	157	1.666475	183	0.857467	25	**2** 0
10	4581	42	0135	66	6260	34	3329	157	6292	183	7442	25	50
20	4622	41	0201	66	6294	34	3172	157	6109	183	7417	25	40
30	4664	42	0267	66	6328	34	3015	157	5926	183	7392	25	30
40	4706	42	0333	66	6362	34	2858	157	5743	183	7367	25	20
50	4747	41	0399	66	6396	34	2701	157	5560	183	7342	25	10
59 0	0.514789	42	0.600465	66	1.166430	34	1.942545	156	1.665377	183	0.857317	25	**1** 0
10	4830	41	0531	66	6464	34	2388	157	5194	183	7292	25	50
20	4872	42	0597	66	6497	33	2231	157	5011	183	7267	25	40
30	4913	41	0663	66	6531	34	2074	157	4828	183	7242	25	30
40	4955	42	0729	66	6565	34	1917	157	4645	183	7217	25	20
50	4997	42	0795	66	6599	34	1761	156	4462	183	7192	25	10
60 0	0.515038	41	0.600861	66	1.166633	34	1.941604	157	1.664279	183	0.857167	25	**0** 0
	cos		cotg		cosec		sec		tang		sin		

25		34		42		66		158		161		184		187	
1	2.5	1	3.4	1	4.2	1	6.6	1	15.8	1	16.1	1	18.4	1	18.7
2	5.0	2	6.8	2	8.4	2	13.2	2	31.6	2	32.2	2	36.8	2	37.4
3	7.5	3	10.2	3	12.6	3	19.8	3	47.4	3	48.3	3	55.2	3	56.1
4	10.0	4	13.6	4	16.8	4	26.4	4	63.2	4	64.4	4	73.6	4	74.8
5	12.5	5	17.0	5	21.0	5	33.0	5	79.0	5	80.5	5	92.0	5	93.5
6	15.0	6	20.4	6	25.2	6	39.6	6	94.8	6	96.6	6	110.4	6	112.2
7	17.5	7	23.8	7	29.4	7	46.2	7	110.6	7	112.7	7	128.8	7	130.9
8	20.0	8	27.2	8	33.6	8	52.8	8	126.4	8	128.8	8	147.2	8	149.6
9	22.5	9	30.6	9	37.8	9	59.4	9	142.2	9	144.9	9	165.6	9	168.3

59°

31°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.515038		0.600861		1.166633		1.941604		1.664279		0.857167		**60′** 0″
10	5080	42	0927	66	6667	34	1447	157	4097	182	7142	25	50
20	5121	41	0993	66	6701	34	1291	156	3914	183	7117	25	40
30	5163	42	1059	66	6735	34	1134	157	3731	183	7092	25	30
40	5204	41	1125	66	6769	34	0978	156	3549	182	7067	25	20
50	5246	42	1191	66	6803	34	0821	157	3366	183	7042	25	10
1 0	0.515287	41	0.601257	66	1.166837	34	1.940665	156	1.663183	183	0.857017	25	**59** 0
10	5329	42	1323	66	6871	34	0508	157	3001	182	6992	25	50
20	5370	41	1389	66	6905	34	0352	156	2818	183	6967	25	40
30	5412	42	1455	66	6939	34	0195	157	2636	182	6942	25	30
40	5454	42	1521	66	6973	34	1.940039	156	2453	183	6918	24	20
50	5495	41	1587	66	7008	35	1.939883	156	2271	182	6893	25	10
2 0	0.515537	42	0.601653	66	1.167042	34	1.939726	157	1.662088	183	0.856868	25	**58** 0
10	5578	41	1719	66	7076	34	9570	156	1906	182	6843	25	50
20	5620	42	1785	66	7110	34	9414	156	1724	182	6818	25	40
30	5661	41	1851	66	7144	34	9257	157	1541	183	6793	25	30
40	5703	42	1917	66	7178	34	9101	156	1359	182	6768	25	20
50	5744	41	1983	66	7212	34	8945	156	1177	182	6743	25	10
3 0	0.515786	42	0.602049	66	1.167246	34	1.938789	156	1.660994	183	0.856718	25	**57** 0
10	5827	41	2115	66	7280	34	8633	156	0812	182	6693	25	50
20	5869	42	2181	66	7314	34	8477	156	0630	182	6668	25	40
30	5910	41	2247	66	7348	34	8321	156	0448	182	6642	26	30
40	5952	42	2313	66	7382	34	8165	156	0266	182	6617	25	20
50	5994	42	2379	66	7416	34	8009	156	1.660084	182	6592	25	10
4 0	0.516035	41	0.602445	66	1.167450	34	1.937853	156	1.659902	182	0.856567	25	**56** 0
10	6077	42	2511	66	7484	34	7697	156	9720	182	6542	25	50
20	6118	41	2578	67	7519	35	7541	156	9538	182	6517	25	40
30	6160	42	2644	66	7553	34	7385	156	9356	182	6492	25	30
40	6201	41	2710	66	7587	34	7229	156	9174	182	6467	25	20
50	6243	42	2776	66	7621	34	7073	156	8992	182	6442	25	10
5 0	0.516284	41	0.602842	66	1.167655	34	1.936918	155	1.658810	182	0.856417	25	**55** 0
10	6326	42	2908	66	7689	34	6762	156	8628	182	6392	25	50
20	6367	41	2974	66	7723	34	6606	156	8446	182	6367	25	40
30	6409	42	3040	66	7757	34	6450	156	8264	182	6342	25	30
40	6450	41	3106	66	7792	35	6295	155	8082	182	6317	25	20
50	6492	42	3172	66	7826	34	6139	156	7901	181	6292	25	10
6 0	0.516533	41	0.603239	67	1.167860	34	1.935983	156	1.657719	182	0.856267	25	**54** 0
10	6575	42	3305	66	7894	34	5828	155	7537	182	6242	25	50
20	6616	41	3371	66	7928	34	5672	156	7356	181	6217	25	40
30	6658	42	3437	66	7962	34	5517	155	7174	182	6192	25	30
40	6699	41	3503	66	7997	35	5361	156	6992	182	6167	25	20
50	6741	42	3569	66	8031	34	5206	155	6811	181	6142	25	10
7 0	0.516782	41	0.603635	66	1.168065	34	1.935050	156	1.656629	182	0.856117	25	**53** 0
10	6824	42	3702	67	8099	34	4895	155	6448	181	6092	25	50
20	6865	41	3768	66	8133	34	4740	155	6266	182	6067	25	40
30	6907	42	3834	66	8167	34	4584	156	6085	181	6042	25	30
40	6948	41	3900	66	8202	35	4429	155	5903	182	6017	25	20
50	6990	42	3966	66	8236	34	4274	155	5722	181	5991	26	10
8 0	0.517031	41	0.604032	66	1.168270	34	1.934119	155	1.655541	181	0.855966	25	**52** 0
10	7073	42	4099	67	8304	34	3963	156	5359	182	5941	25	50
20	7114	41	4165	66	8339	35	3808	155	5178	181	5916	25	40
30	7156	42	4231	66	8373	34	3653	155	4997	181	5891	25	30
40	7197	41	4297	66	8407	34	3498	155	4815	182	5866	25	20
50	7239	42	4363	66	8441	34	3343	155	4634	181	5841	25	10
9 0	0.517280	41	0.604429	66	1.168475	34	1.933188	155	1.654453	181	0.855816	25	**51** 0
10	7322	42	4496	67	8510	35	3033	155	4272	181	5791	25	50
20	7363	41	4562	66	8544	34	2878	155	4091	181	5766	25	40
30	7405	42	4628	66	8578	34	2723	155	3909	182	5741	25	30
40	7446	41	4694	66	8612	34	2568	155	3728	181	5716	25	20
50	7488	42	4760	66	8647	35	2413	155	3547	181	5691	25	10
10 0	0.517529	41	0.604827	67	1.168681	34	1.932258	155	1.653366	181	0.855665	26	**50** 0
	cos		cotg		cosec		sec		tang		sin		

24

1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

26

1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

35

1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

42

1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

67

1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

155

1	15.5
2	31.0
3	46.5
4	62.0
5	77.5
6	93.0
7	108.5
8	124.0
9	139.5

179

1	17.9
2	35.8
3	53.7
4	71.6
5	89.5
6	107.4
7	125.3
8	143.2
9	161.1

182

1	18.2
2	36.4
3	54.6
4	72.8
5	91.0
6	109.2
7	127.4
8	145.6
9	163.8

58°

31°

		sin		tang		sec		cosec		cotg		cos		
	10′ 0″	0.517529		0.604827		1.168681		1.932258		1.653366		0.855665		**50′** 0″
	10	7571	42	4893	66	8715	34	2103	155	3185	181	5640	25	50
	20	7612	41	4959	66	8750	35	1948	155	3004	181	5615	25	40
	30	7654	42	5025	66	8784	34	1793	155	2823	181	5590	25	30
	40	7695	41	5092	67	8818	34	1638	155	2642	181	5565	25	20
	50	7737	42	5158	66	8852	34	1484	154	2462	180	5540	25	10
	11 0	0.517778	41	0.605224	66	1.168887	35	1.931329	155	1.652281	181	0.855515	25	**49** 0
	10	7820	42	5290	66	8921	34	1174	155	2100	181	5490	25	50
	20	7861	41	5357	67	8955	34	1020	154	1919	181	5465	25	40
	30	7903	42	5423	66	8990	35	0865	155	1738	181	5440	25	30
	40	7944	41	5489	66	9024	34	0710	155	1558	180	5414	26	20
	50	7986	42	5555	66	9058	34	0556	154	1377	181	5389	25	10
	12 0	0.518027	41	0.605622	67	1.169093	35	1.930401	155	1.651196	181	0.855364	25	**48** 0
	10	8068	41	5688	66	9127	34	0247	154	1016	180	5339	25	50
	20	8110	42	5754	66	9161	34	1.930092	155	0835	181	5314	25	40
	30	8151	41	5820	66	9196	35	1.929938	154	0654	181	5289	25	30
	40	8193	42	5887	67	9230	34	9783	155	0474	180	5264	25	20
	50	8234	41	5953	66	9264	34	9629	154	0293	181	5239	25	10
	13 0	0.518276	42	0.606019	66	1.169299	35	1.929475	154	1.650113	180	0.855214	25	**47** 0
	10	8317	41	6085	66	9333	34	9320	155	1.649932	181	5188	26	50
	20	8359	42	6152	67	9367	34	9166	154	9752	180	5163	25	40
	30	8400	41	6218	66	9402	35	9012	154	9571	181	5138	25	30
	40	8442	42	6284	66	9436	34	8857	155	9391	180	5113	25	20
	50	8483	41	6351	67	9470	34	8703	154	9211	180	5088	25	10
	14 0	0.518525	42	0.606417	66	1.169505	35	1.928549	154	1.649030	181	0.855063	25	**46** 0
	10	8566	41	6483	66	9539	34	8395	154	8850	180	5038	25	50
	20	8607	41	6550	67	9574	35	8241	154	8670	180	5012	26	40
	30	8649	42	6616	66	9608	34	8087	154	8490	180	4987	25	30
	40	8690	41	6682	66	9642	34	7932	155	8309	181	4962	25	20
	50	8732	42	6749	67	9677	35	7778	154	8129	180	4937	25	10
	15 0	0.518773	41	0.606815	66	1.169711	34	1.927624	154	1.647949	180	0.854912	25	**45** 0
	10	8815	42	6881	66	9746	35	7470	154	7769	180	4887	25	50
	20	8856	41	6948	67	9780	34	7316	154	7589	180	4862	25	40
	30	8898	42	7014	66	9814	34	7163	153	7409	180	4836	26	30
	40	8939	41	7080	66	9849	35	7009	154	7229	180	4811	25	20
	50	8980	41	7147	67	9883	34	6855	154	7049	180	4786	25	10
	16 0	0.519022	42	0.607213	66	1.169918	35	1.926701	154	1.646869	180	0.854761	25	**44** 0
	10	9063	41	7279	66	9952	34	6547	154	6689	180	4736	25	50
	20	9105	42	7346	67	1.169987	35	6393	154	6509	180	4711	25	40
	30	9146	41	7412	66	1.170021	34	6240	153	6329	180	4685	26	30
	40	9188	42	7478	66	0056	35	6086	154	6149	180	4660	25	20
	50	9229	41	7545	67	0090	34	5932	154	5969	180	4635	25	10
	17 0	0.519271	42	0.607611	66	1.170124	34	1.925778	154	1.645789	180	0.854610	25	**43** 0
	10	9312	41	7678	67	0159	35	5625	153	5610	179	4585	25	50
	20	9353	41	7744	66	0193	34	5471	154	5430	180	4560	25	40
	30	9395	42	7810	66	0228	35	5318	153	5250	180	4534	26	30
	40	9436	41	7877	67	0262	34	5164	154	5070	180	4509	25	20
	50	9478	42	7943	66	0297	35	5011	153	4891	179	4484	25	10
	18 0	0.519519	41	0.608010	67	1.170331	34	1.924857	154	1.644711	180	0.854459	25	**42** 0
	10	9561	42	8076	66	0366	35	4704	153	4531	180	4434	25	50
	20	9602	41	8142	66	0400	34	4550	154	4352	179	4408	26	40
	30	9643	41	8209	67	0435	35	4397	153	4172	180	4383	25	30
	40	9685	42	8275	66	0469	34	4243	154	3993	179	4358	25	20
	50	9726	41	8342	67	0504	35	4090	153	3813	180	4333	25	10
	19 0	0.519768	42	0.608408	66	1.170538	34	1.923937	153	1.643634	179	0.854308	25	**41** 0
	10	9809	41	8474	66	0573	35	3783	154	3454	180	4282	26	50
	20	9850	41	8541	67	0608	35	3630	153	3275	179	4257	25	40
	30	9892	42	8607	66	0642	34	3477	153	3096	179	4232	25	30
	40	9933	41	8674	67	0677	35	3324	153	2916	180	4207	25	20
	50	0.519975	42	8740	66	0711	34	3170	154	2737	179	4182	25	10
	20 0	0.520016	41	0.608807	67	1.170746	35	1.923017	153	1.642558	179	0.854156	26	**40** 0
		cos		cotg		cosec		sec		tang		sin		

25	
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

66	
1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

153	
1	15.3
2	30.6
3	45.9
4	61.2
5	76.5
6	91.8
7	107.1
8	122.4
9	137.7

157	
1	15.7
2	31.4
3	47.1
4	62.8
5	78.5
6	94.2
7	109.9
8	125.6
9	141.3

180	
1	18.0
2	36.0
3	54.0
4	72.0
5	90.0
6	108.0
7	126.0
8	144.0
9	162.0

183	
1	18.3
2	36.6
3	54.9
4	73.2
5	91.5
6	109.8
7	128.1
8	146.4
9	164.7

58°

31°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.520016		0.608807		1.170746		1.923017		1.642558		0.854156		**40′** 0″
10	0058	42	8873	66	0780	34	2864	153	2378	180	4131	25	50
20	0099	41	8940	67	0815	35	2711	153	2199	179	4106	25	40
30	0140	41	9006	66	0849	34	2558	153	2020	179	4081	25	30
40	0182	42	9072	66	0884	35	2405	153	1841	179	4056	25	20
50	0223	41	9139	67	0919	35	2252	153	1662	179	4030	26	10
21 0	0.520265	42	0.609205	66	1.170953	34	1.922099	153	1.641482	180	0.854005	25	**39** 0
10	0306	41	9272	67	0988	35	1946	153	1303	179	3980	25	50
20	0347	41	9338	66	1022	34	1793	153	1124	179	3955	25	40
30	0389	42	9405	67	1057	35	1640	153	0945	179	3929	26	30
40	0430	41	9471	66	1092	35	1487	153	0766	179	3904	25	20
50	0472	42	9538	67	1126	34	1335	152	0587	179	3879	25	10
22 0	0.520513	41	0.609604	66	1.171161	35	1.921182	153	1.640408	179	0.853854	25	**38** 0
10	0554	41	9671	67	1195	34	1029	153	0229	179	3829	25	50
20	0596	42	9737	66	1230	35	0876	153	1.640050	179	3803	26	40
30	0637	41	9804	67	1265	35	0723	153	1.639872	178	3778	25	30
40	0679	42	9870	66	1299	34	0571	152	9693	179	3753	25	20
50	0720	41	0.609937	67	1334	35	0418	153	9514	179	3728	25	10
23 0	0.520761	41	0.610003	66	1.171368	34	1.920265	153	1.639335	179	0.853702	26	**37** 0
10	0803	42	0070	67	1403	35	1.920113	152	9156	179	3677	25	50
20	0844	41	0136	66	1438	35	1.919960	153	8978	178	3652	25	40
30	0885	41	0203	67	1472	34	9808	152	8799	179	3627	25	30
40	0927	42	0270	67	1507	35	9655	153	8620	179	3601	26	20
50	0968	41	0336	66	1542	35	9503	152	8442	178	3576	25	10
24 0	0.521010	42	0.610403	67	1.171576	34	1.919350	153	1.638263	179	0.853551	25	**36** 0
10	1051	41	0469	66	1611	35	9198	152	8084	179	3526	25	50
20	1092	41	0536	67	1646	35	9045	153	7906	178	3500	26	40
30	1134	42	0602	66	1680	34	8893	152	7727	179	3475	25	30
40	1175	41	0669	67	1715	35	8741	152	7549	178	3450	25	20
50	1217	42	0735	66	1750	35	8588	153	7370	179	3424	26	10
25 0	0.521258	41	0.610802	67	1.171785	35	1.918436	152	1.637192	178	0.853399	25	**35** 0
10	1299	41	0869	67	1819	34	8284	152	7013	179	3374	25	50
20	1341	42	0935	66	1854	35	8132	152	6835	178	3349	25	40
30	1382	41	1002	67	1889	35	7979	153	6657	178	3323	26	30
40	1423	41	1068	66	1923	34	7827	152	6478	179	3298	25	20
50	1465	42	1135	67	1958	35	7675	152	6300	178	3273	25	10
26 0	0.521506	41	0.611201	66	1.171993	35	1.917523	152	1.636122	178	0.853248	25	**34** 0
10	1547	41	1268	67	2028	35	7371	152	5944	178	3222	26	50
20	1589	42	1335	67	2062	34	7219	152	5765	179	3197	25	40
30	1630	41	1401	66	2097	35	7067	152	5587	178	3172	25	30
40	1672	42	1468	67	2132	35	6915	152	5409	178	3146	26	20
50	1713	41	1534	66	2167	35	6763	152	5231	178	3121	25	10
27 0	0.521754	41	0.611601	67	1.172201	34	1.916611	152	1.635053	178	0.853096	25	**33** 0
10	1796	42	1668	67	2236	35	6459	152	4875	178	3071	25	50
20	1837	41	1734	66	2271	35	6307	152	4697	178	3045	26	40
30	1878	41	1801	67	2306	35	6155	152	4519	178	3020	25	30
40	1920	42	1868	67	2340	34	6003	152	4341	178	2995	25	20
50	1961	41	1934	66	2375	35	5852	151	4163	178	2969	26	10
28 0	0.522002	41	0.612001	67	1.172410	35	1.915700	152	1.633985	178	0.852944	25	**32** 0
10	2044	42	2067	66	2445	35	5548	152	3807	178	2919	25	50
20	2085	41	2134	67	2479	34	5396	152	3629	178	2893	26	40
30	2126	41	2201	67	2514	35	5245	151	3451	178	2868	25	30
40	2168	42	2267	66	2549	35	5093	152	3273	178	2843	25	20
50	2209	41	2334	67	2584	35	4941	152	3095	178	2817	26	10
29 0	0.522251	42	0.612401	67	1.172619	35	1.914790	151	1.632918	177	0.852792	25	**31** 0
10	2292	41	2467	66	2654	35	4638	152	2740	178	2767	25	50
20	2333	41	2534	67	2688	34	4487	151	2562	178	2741	26	40
30	2375	42	2601	67	2723	35	4335	152	2385	177	2716	25	30
40	2416	41	2667	66	2758	35	4184	151	2207	178	2691	25	20
50	2457	41	2734	67	2793	35	4032	152	2029	178	2665	26	10
30 0	0.522499	42	0.612801	67	1.172828	35	1.913881	151	1.631852	177	0.852640	25	**30** 0
	cos		cotg		cosec		sec		tang		sin		

25	
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

67	
1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

151	
1	15.1
2	30.2
3	45.3
4	60.4
5	75.5
6	90.6
7	105.7
8	120.8
9	135.9

176	
1	17.6
2	35.2
3	52.8
4	70.4
5	88.0
6	105.6
7	123.2
8	140.8
9	158.4

178	
1	17.8
2	35.6
3	53.4
4	71.2
5	89.0
6	106.8
7	124.6
8	142.4
9	160.2

58°

31°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.522499		0.612801		1.172828		1.913881		1.631852		0.852640		**30′** 0″
10	2540	41	2867	66	2863	35	3729	152	1674	178	2615	25	50
20	2581	41	2934	67	2897	34	3578	151	1497	177	2589	26	40
30	2623	42	3001	67	2932	35	3427	151	1319	178	2564	25	30
40	2664	41	3068	67	2967	35	3275	152	1142	177	2539	25	20
50	2705	41	3134	66	3002	35	3124	151	0964	178	2513	26	10
31 0	0.522747	42	0.613201	67	1.173037	35	1.912973	151	1.630787	177	0.852488	25	**29** 0
10	2788	41	3268	67	3072	35	2822	151	0609	178	2463	25	50
20	2829	41	3334	66	3107	35	2670	152	0432	177	2437	26	40
30	2871	42	3401	67	3141	34	2519	151	0255	177	2412	25	30
40	2912	41	3468	67	3176	35	2368	151	1.630077	178	2387	25	20
50	2953	41	3535	67	3211	35	2217	151	1.629900	177	2361	26	10
32 0	0.522995	42	0.613601	66	1.173246	35	1.912066	151	1.629723	177	0.852336	25	**28** 0
10	3036	41	3668	67	3281	35	1915	151	9545	178	2311	25	50
20	3077	41	3735	67	3316	35	1764	151	9368	177	2285	26	40
30	3118	41	3802	67	3351	35	1613	151	9191	177	2260	25	30
40	3160	42	3868	66	3386	35	1462	151	9014	177	2235	25	20
50	3201	41	3935	67	3421	35	1311	151	8837	177	2209	26	10
33 0	0.523242	41	0.614002	67	1.173456	35	1.911160	151	1.628660	177	0.852184	25	**27** 0
10	3284	42	4069	67	3491	35	1009	151	8483	177	2159	25	50
20	3325	41	4135	66	3526	35	0858	151	8306	177	2133	26	40
30	3366	41	4202	67	3560	34	0707	151	8129	177	2108	25	30
40	3408	42	4269	67	3595	35	0557	150	7952	177	2082	26	20
50	3449	41	4336	67	3630	35	0406	151	7775	177	2057	25	10
34 0	0.523490	41	0.614402	66	1.173665	35	1.910255	151	1.627598	177	0.852032	25	**26** 0
10	3532	42	4469	67	3700	35	1.910104	151	7421	177	2006	26	50
20	3573	41	4536	67	3735	35	1.909954	150	7244	177	1981	25	40
30	3614	41	4603	67	3770	35	9803	151	7067	177	1955	26	30
40	3656	42	4670	67	3805	35	9652	151	6890	177	1930	25	20
50	3697	41	4736	66	3840	35	9502	150	6714	176	1905	25	10
35 0	0.523738	41	0.614803	67	1.173875	35	1.909351	151	1.626537	177	0.851879	26	**25** 0
10	3779	41	4870	67	3910	35	9201	150	6360	177	1854	25	50
20	3821	42	4937	67	3945	35	9050	151	6183	177	1829	25	40
30	3862	41	5004	67	3980	35	8900	150	6007	176	1803	26	30
40	3903	41	5070	66	4015	35	8749	151	5830	177	1778	25	20
50	3945	42	5137	67	4050	35	8599	150	5653	177	1752	26	10
36 0	0.523986	41	0.615204	67	1.174085	35	1.908448	151	1.625477	176	0.851727	25	**24** 0
10	4027	41	5271	67	4120	35	8298	150	5300	177	1702	25	50
20	4068	41	5338	67	4155	35	8148	150	5124	176	1676	26	40
30	4110	42	5405	67	4190	35	7997	151	4947	177	1651	25	30
40	4151	41	5471	66	4225	35	7847	150	4771	176	1625	26	20
50	4192	41	5538	67	4260	35	7697	150	4594	177	1600	25	10
37 0	0.524234	42	0.615605	67	1.174295	35	1.907546	151	1.624418	176	0.851574	26	**23** 0
10	4275	41	5672	67	4330	35	7396	150	4241	177	1549	25	50
20	4316	41	5739	67	4366	36	7246	150	4065	176	1524	25	40
30	4357	41	5806	67	4401	35	7096	150	3889	176	1498	26	30
40	4399	42	5873	67	4436	35	6946	150	3712	177	1473	25	20
50	4440	41	5939	66	4471	35	6796	150	3536	176	1447	26	10
38 0	0.524481	41	0.616006	67	1.174506	35	1.906646	150	1.623360	176	0.851422	25	**22** 0
10	4523	42	6073	67	4541	35	6496	150	3184	176	1397	25	50
20	4564	41	6140	67	4576	35	6345	151	3007	177	1371	26	40
30	4605	41	6207	67	4611	35	6196	149	2831	176	1346	25	30
40	4646	41	6274	67	4646	35	6046	150	2655	176	1320	26	20
50	4688	42	6341	67	4681	35	5896	150	2479	176	1295	25	10
39 0	0.524729	41	0.616408	67	1.174716	35	1.905746	150	1.622303	176	0.851269	26	**21** 0
10	4770	41	6475	67	4751	35	5596	150	2127	176	1244	25	50
20	4812	42	6542	67	4787	36	5446	150	1951	176	1218	26	40
30	4853	41	6608	66	4822	35	5296	150	1775	176	1193	25	30
40	4894	41	6675	67	4857	35	5146	150	1599	176	1168	25	20
50	4935	41	6742	67	4892	35	4997	149	1423	176	1142	26	10
40 0	0.524977	42	0.616809	67	1.174927	35	1.904847	150	1.621247	176	0.851117	25	**20** 0
	cos		cotg		cosec		sec		tang		sin		

26		35		41		66		149		153		177		180	
1	2.6	1	3.5	1	4.1	1	6.6	1	14.9	1	15.3	1	17.7	1	18.0
2	5.2	2	7.0	2	8.2	2	13.2	2	29.8	2	30.6	2	35.4	2	36.0
3	7.8	3	10.5	3	12.3	3	19.8	3	44.7	3	45.9	3	53.1	3	54.0
4	10.4	4	14.0	4	16.4	4	26.4	4	59.6	4	61.2	4	70.8	4	72.0
5	13.0	5	17.5	5	20.5	5	33.0	5	74.5	5	76.5	5	88.5	5	90.0
6	15.6	6	21.0	6	24.6	6	39.6	6	89.4	6	91.8	6	106.2	6	108.0
7	18.2	7	24.5	7	28.7	7	46.2	7	104.3	7	107.1	7	123.9	7	126.0
8	20.8	8	28.0	8	32.8	8	52.8	8	119.2	8	122.4	8	141.6	8	144.0
9	23.4	9	31.5	9	36.9	9	59.4	9	134.1	9	137.7	9	159.3	9	162.0

58°

31°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.524977		0.616809		1.174927		1.904847		1.621247		0.851117		**20′** 0″
10	5018	41	6876	67	4962	35	4697	150	1071	176	1091	26	50
20	5059	41	6943	67	4997	35	4547	150	0895	176	1066	25	40
30	5100	41	7010	67	5032	35	4398	149	0719	176	1040	26	30
40	5142	42	7077	67	5068	36	4248	150	0544	175	1015	25	20
50	5183	41	7144	67	5103	35	4099	149	0368	176	0989	26	10
41 0	0.525224	41	0.617211	67	1.175138	35	1.903949	150	1.620192	176	0.850964	25	**19** 0
10	5265	41	7278	67	5173	35	3800	149	1.620016	176	0938	26	50
20	5307	42	7345	67	5208	35	3650	150	1.619841	175	0913	25	40
30	5348	41	7412	67	5243	35	3501	149	9665	176	0888	25	30
40	5389	41	7479	67	5279	36	3351	150	9489	176	0862	26	20
50	5430	41	7546	67	5314	35	3202	149	9314	175	0837	25	10
42 0	0.525472	42	0.617613	67	1.175349	35	1.903052	150	1.619138	176	0.850811	26	**18** 0
10	5513	41	7680	67	5384	35	2903	149	8962	176	0786	25	50
20	5554	41	7747	67	5419	35	2754	149	8787	175	0760	26	40
30	5595	41	7814	67	5455	36	2604	150	8611	176	0735	25	30
40	5637	42	7881	67	5490	35	2455	149	8436	175	0709	26	20
50	5678	41	7948	67	5525	35	2306	149	8260	176	0684	25	10
43 0	0.525719	41	0.618015	67	1.175560	35	1.902156	150	1.618085	175	0.850658	26	**17** 0
10	5760	41	8082	67	5595	35	2007	149	7910	175	0633	25	50
20	5802	42	8149	67	5631	36	1858	149	7734	176	0607	26	40
30	5843	41	8216	67	5666	35	1709	149	7559	175	0582	25	30
40	5884	41	8283	67	5701	35	1560	149	7384	175	0556	26	20
50	5925	41	8350	67	5736	35	1411	149	7208	176	0531	25	10
44 0	0.525967	42	0.618417	67	1.175772	36	1.901262	149	1.617033	175	0.850505	26	**16** 0
10	6008	41	8484	67	5807	35	1113	149	6858	175	0480	25	50
20	6049	41	8551	67	5842	35	0964	149	6683	175	0454	26	40
30	6090	41	8618	67	5877	35	0815	149	6507	176	0429	25	30
40	6131	41	8685	67	5913	36	0666	149	6332	175	0403	26	20
50	6173	42	8752	67	5948	35	0517	149	6157	175	0378	25	10
45 0	0.526214	41	0.618819	67	1.175983	35	1.900368	149	1.615982	175	0.850352	26	**15** 0
10	6255	41	8886	67	6019	36	0219	149	5807	175	0327	25	50
20	6296	41	8953	67	6054	35	1.900070	149	5632	175	0301	26	40
30	6338	42	9020	67	6089	35	1.899921	149	5457	175	0276	25	30
40	6379	41	9087	67	6124	35	9772	149	5282	175	0250	26	20
50	6420	41	9154	67	6160	36	9624	148	5107	175	0225	25	10
46 0	0.526461	41	0.619221	67	1.176195	35	1.899475	149	1.614932	175	0.850199	26	**14** 0
10	6502	41	9288	67	6230	35	9326	149	4757	175	0174	25	50
20	6544	42	9355	67	6266	36	9178	148	4582	175	0148	26	40
30	6585	41	9422	67	6301	35	9029	149	4407	175	0123	25	30
40	6626	41	9489	67	6336	35	8880	149	4233	174	0097	26	20
50	6667	41	9557	68	6372	36	8732	148	4058	175	0071	26	10
47 0	0.526709	42	0.619624	67	1.176407	35	1.898583	149	1.613883	175	0.850046	25	**13** 0
10	6750	41	9691	67	6442	35	8435	148	3708	175	0.850020	26	50
20	6791	41	9758	67	6478	36	8286	149	3533	175	0.849995	25	40
30	6832	41	9825	67	6513	35	8138	148	3359	174	9969	26	30
40	6873	41	9892	67	6548	35	7989	149	3184	175	9944	25	20
50	6915	42	0.619959	67	6584	36	7841	148	3009	175	9918	26	10
48 0	0.526956	41	0.620026	67	1.176619	35	1.897692	149	1.612835	174	0.849893	25	**12** 0
10	6997	41	0093	67	6655	36	7544	148	2660	175	9867	26	50
20	7038	41	0161	68	6690	35	7396	148	2486	174	9842	25	40
30	7079	41	0228	67	6725	35	7247	149	2311	175	9816	26	30
40	7121	42	0295	67	6761	36	7099	148	2137	174	9790	26	20
50	7162	41	0362	67	6796	35	6951	148	1962	175	9765	25	10
49 0	0.527203	41	0.620429	67	1.176831	35	1.896803	148	1.611788	174	0.849739	26	**11** 0
10	7244	41	0496	67	6867	36	6654	149	1613	175	9714	25	50
20	7285	41	0563	67	6902	35	6506	148	1439	174	9688	26	40
30	7327	42	0631	68	6938	36	6358	148	1265	174	9663	25	30
40	7368	41	0698	67	6973	35	6210	148	1090	175	9637	26	20
50	7409	41	0765	67	7008	35	6062	148	0916	174	9612	25	10
50 0	0.527450	41	0.620832	67	1.177044	36	1.895914	148	1.610742	174	0.849586	26	**10** 0
	cos		cotg		cosec		sec		tang		sin		

25

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3	7.5
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7	17.5
8	20.0
9	22.5

35

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2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

41

1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

67

1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

146

1	14.6
2	29.2
3	43.8
4	58.4
5	73.0
6	87.6
7	102.2
8	116.8
9	131.4

148

1	14.8
2	29.6
3	44.4
4	59.2
5	74.0
6	88.8
7	103.6
8	118.4
9	133.2

172

1	17.2
2	34.4
3	51.6
4	68.8
5	86.0
6	103.2
7	120.4
8	137.6
9	154.8

175

1	17.5
2	35.0
3	52.5
4	70.0
5	87.5
6	105.0
7	122.5
8	140.0
9	157.5

58°

31°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.527450		0.620832		1.177044		1.895914		1.610742		0.849586		**10′** 0″
10	7491	41	0899	67	7079	35	5766	148	0567	175	9560	26	50
20	7533	42	0966	67	7115	36	5618	148	0393	174	9535	25	40
30	7574	41	1034	68	7150	35	5470	148	0219	174	9509	26	30
40	7615	41	1101	67	7186	36	5322	148	1.610045	174	9484	25	20
50	7656	41	1168	67	7221	35	5174	148	1.609871	174	9458	26	10
51 0	0.527697	41	0.621235	67	1.177257	36	1.895026	148	1.609697	174	0.849433	25	**9** 0
10	7738	41	1302	67	7292	35	4878	148	9523	174	9407	26	50
20	7780	42	1369	67	7327	35	4730	148	9348	175	9381	26	40
30	7821	41	1437	68	7363	36	4582	148	9174	174	9356	25	30
40	7862	41	1504	67	7398	35	4435	147	9000	174	9330	26	20
50	7903	41	1571	67	7434	36	4287	148	8826	174	9305	25	10
52 0	0.527944	41	0.621638	67	1.177469	35	1.894139	148	1.608653	173	0.849279	26	**8** 0
10	7986	42	1706	68	7505	36	3991	148	8479	174	9253	26	50
20	8027	41	1773	67	7540	35	3844	147	8305	174	9228	25	40
30	8068	41	1840	67	7576	36	3696	148	8131	174	9202	26	30
40	8109	41	1907	67	7611	35	3548	148	7957	174	9177	25	20
50	8150	41	1974	67	7647	36	3401	147	7783	174	9151	26	10
53 0	0.528191	41	0.622042	68	1.177682	35	1.893253	148	1.607609	174	0.849125	26	**7** 0
10	8233	42	2109	67	7718	36	3106	147	7436	173	9100	25	50
20	8274	41	2176	67	7753	35	2958	148	7262	174	9074	26	40
30	8315	41	2243	67	7789	36	2811	147	7088	174	9049	25	30
40	8356	41	2311	68	7825	36	2663	148	6914	174	9023	26	20
50	8397	41	2378	67	7860	35	2516	147	6741	173	8997	26	10
54 0	0.528438	41	0.622445	67	1.177896	36	1.892368	148	1.606567	174	0.848972	25	**6** 0
10	8479	41	2512	67	7931	35	2221	147	6394	173	8946	26	50
20	8521	42	2580	68	7967	36	2074	147	6220	174	8920	26	40
30	8562	41	2647	67	8002	35	1926	148	6046	174	8895	25	30
40	8603	41	2714	67	8038	36	1779	147	5873	173	8869	26	20
50	8644	41	2782	68	8073	35	1632	147	5699	174	8844	25	10
55 0	0.528685	41	0.622849	67	1.178109	36	1.891485	147	1.605526	173	0.848818	26	**5** 0
10	8726	41	2916	67	8145	36	1337	148	5353	173	8792	26	50
20	8768	42	2983	67	8180	35	1190	147	5179	174	8767	25	40
30	8809	41	3051	68	8216	36	1043	147	5006	173	8741	26	30
40	8850	41	3118	67	8251	35	0896	147	4832	174	8715	26	20
50	8891	41	3185	67	8287	36	0749	147	4659	173	8690	25	10
56 0	0.528932	41	0.623253	68	1.178322	35	1.890602	147	1.604486	173	0.848664	26	**4** 0
10	8973	41	3320	67	8358	36	0455	147	4312	174	8638	26	50
20	9014	41	3387	67	8394	36	0308	147	4139	173	8613	25	40
30	9056	42	3455	68	8429	35	0161	147	3966	173	8587	26	30
40	9097	41	3522	67	8465	36	1.890014	147	3793	173	8562	25	20
50	9138	41	3589	67	8501	36	1.889867	147	3620	173	8536	26	10
57 0	0.529179	41	0.623657	68	1.178536	35	1.889720	147	1.603446	174	0.848510	26	**3** 0
10	9220	41	3724	67	8572	36	9573	147	3273	173	8485	25	50
20	9261	41	3791	67	8607	35	9426	147	3100	173	8459	26	40
30	9302	41	3859	68	8643	36	9279	147	2927	173	8433	26	30
40	9344	42	3926	67	8679	36	9132	147	2754	173	8408	25	20
50	9385	41	3993	67	8714	35	8986	146	2581	173	8382	26	10
58 0	0.529426	41	0.624061	68	1.178750	36	1.888839	147	1.602408	173	0.848356	26	**2** 0
10	9467	41	4128	67	8786	36	8692	147	2235	173	8331	25	50
20	9508	41	4195	67	8821	35	8545	147	2062	173	8305	26	40
30	9549	41	4263	68	8857	36	8399	146	1889	173	8279	26	30
40	9590	41	4330	67	8893	36	8252	147	1717	172	8254	25	20
50	9631	41	4398	68	8928	35	8105	147	1544	173	8228	26	10
59 0	0.529673	42	0.624465	67	1.178964	36	1.887959	146	1.601371	173	0.848202	26	**1** 0
10	9714	41	4532	67	9000	36	7812	147	1198	173	8177	25	50
20	9755	41	4600	68	9036	36	7666	146	1025	173	8151	26	40
30	9796	41	4667	67	9071	35	7519	147	0853	172	8125	26	30
40	9837	41	4735	68	9107	36	7373	146	0680	173	8099	26	20
50	9878	41	4802	67	9143	36	7226	147	0507	173	8074	25	10
60 0	0.529919	41	0.624869	67	1.179178	35	1.887080	146	1.600335	172	0.848048	26	**0** 0
	cos		cotg		cosec		sec		tang		sin		

26	
1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

68	
1	6.8
2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

147	
1	14.7
2	29.4
3	44.1
4	58.8
5	73.5
6	88.2
7	102.9
8	117.6
9	132.3

150	
1	15.0
2	30.0
3	45.0
4	60.0
5	75.0
6	90.0
7	105.0
8	120.0
9	135.0

173	
1	17.3
2	34.6
3	51.9
4	69.2
5	86.5
6	103.8
7	121.1
8	138.4
9	155.7

176	
1	17.6
2	35.2
3	52.8
4	70.4
5	88.0
6	105.6
7	123.2
8	140.8
9	158.4

58°

32°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.529919		0.624869		1.179178		1.887080		1.600335		0.848048		**60′** 0″
10	0.529960	41	4937	68	9214	36	6934	146	1.600162	173	8022	26	50
20	0.530001	41	5004	67	9250	36	6787	147	1.599989	173	7997	25	40
30	0043	42	5072	68	9286	36	6641	146	9817	172	7971	26	30
40	0084	41	5139	67	9321	35	6494	147	9644	173	7945	26	20
50	0125	41	5206	67	9357	36	6348	146	9472	172	7920	25	10
1 0	0.530166	41	0.625274	68	1.179393	36	1.886202	146	1.599299	173	0.847894	26	**59** 0
10	0207	41	5341	67	9429	36	6056	146	9127	172	7868	26	50
20	0248	41	5409	68	9464	35	5909	147	8954	173	7843	25	40
30	0289	41	5476	67	9500	36	5763	146	8782	172	7817	26	30
40	0330	41	5544	68	9536	36	5617	146	8609	173	7791	26	20
50	0371	41	5611	67	9572	36	5471	146	8437	172	7765	26	10
2 0	0.530413	42	0.625679	68	1.179607	35	1.885325	146	1.598265	172	0.847740	25	**58** 0
10	0454	41	5746	67	9643	36	5179	146	8092	173	7714	26	50
20	0495	41	5814	68	9679	36	5033	146	7920	172	7688	26	40
30	0536	41	5881	67	9715	36	4887	146	7748	172	7663	25	30
40	0577	41	5948	67	9751	36	4741	146	7576	172	7637	26	20
50	0618	41	6016	68	9786	35	4595	146	7403	173	7611	26	10
3 0	0.530659	41	0.626083	67	1.179822	36	1.884449	146	1.597231	172	0.847585	26	**57** 0
10	0700	41	6151	68	9858	36	4303	146	7059	172	7560	25	50
20	0741	41	6218	67	9894	36	4157	146	6887	172	7534	26	40
30	0782	41	6286	68	9930	36	4011	146	6715	172	7508	26	30
40	0823	41	6353	67	1.179965	35	3865	146	6543	172	7482	26	20
50	0865	42	6421	68	1.180001	36	3720	145	6371	172	7457	25	10
4 0	0.530906	41	0.626488	67	1.180037	36	1.883574	146	1.596199	172	0.847431	26	**56** 0
10	0947	41	6556	68	0073	36	3428	146	6027	172	7405	26	50
20	0988	41	6623	67	0109	36	3282	146	5855	172	7379	26	40
30	1029	41	6691	68	0145	36	3137	145	5683	172	7354	25	30
40	1070	41	6758	67	0181	36	2991	146	5511	172	7328	26	20
50	1111	41	6826	68	0216	35	2845	146	5339	172	7302	26	10
5 0	0.531152	41	0.626894	68	1.180252	36	1.882700	145	1.595167	172	0.847276	26	**55** 0
10	1193	41	6961	67	0288	36	2554	146	4995	172	7251	25	50
20	1234	41	7029	68	0324	36	2409	145	4824	171	7225	26	40
30	1275	41	7096	67	0360	36	2263	146	4652	172	7199	26	30
40	1316	41	7164	68	0396	36	2118	145	4480	172	7173	26	20
50	1358	42	7231	67	0432	36	1972	146	4308	172	7148	25	10
6 0	0.531399	41	0.627299	68	1.180468	36	1.881827	145	1.594137	171	0.847122	26	**54** 0
10	1440	41	7366	67	0504	36	1681	146	3965	172	7096	26	50
20	1481	41	7434	68	0539	35	1536	145	3793	172	7070	26	40
30	1522	41	7502	68	0575	36	1390	146	3622	171	7045	25	30
40	1563	41	7569	67	0611	36	1245	145	3450	172	7019	26	20
50	1604	41	7637	68	0647	36	1100	145	3278	172	6993	26	10
7 0	0.531645	41	0.627704	67	1.180683	36	1.880954	146	1.593107	171	0.846967	26	**53** 0
10	1686	41	7772	68	0719	36	0809	145	2935	172	6942	25	50
20	1727	41	7839	67	0755	36	0664	145	2764	171	6916	26	40
30	1768	41	7907	68	0791	36	0519	145	2592	172	6890	26	30
40	1809	41	7975	68	0827	36	0374	145	2421	171	6864	26	20
50	1850	41	8042	67	0863	36	0228	146	2250	171	6838	26	10
8 0	0.531891	41	0.628110	68	1.180899	36	1.880083	145	1.592078	172	0.846813	25	**52** 0
10	1932	41	8177	67	0935	36	1.879938	145	1907	171	6787	26	50
20	1973	41	8245	68	0971	36	9793	145	1736	171	6761	26	40
30	2014	41	8313	68	1007	36	9648	145	1564	172	6735	26	30
40	2056	42	8380	67	1043	36	9503	145	1393	171	6709	26	20
50	2097	41	8448	68	1079	36	9358	145	1222	171	6684	25	10
9 0	0.532138	41	0.628516	68	1.181115	36	1.879213	145	1.591051	171	0.846658	26	**51** 0
10	2179	41	8583	67	1151	36	9068	145	0879	172	6632	26	50
20	2220	41	8651	68	1187	36	8923	145	0708	171	6606	26	40
30	2261	41	8718	67	1223	36	8778	145	0537	171	6580	26	30
40	2302	41	8786	68	1259	36	8633	145	0366	171	6555	25	20
50	2343	41	8854	68	1295	36	8489	144	0195	171	6529	26	10
10 0	0.532384	41	0.628921	67	1.181331	36	1.878344	145	1.590024	171	0.846503	26	**50** 0
	cos		cotg		cosec		sec		tang		sin		

25	
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

35	
1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

37	
1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

67	
1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

143	
1	14.3
2	28.6
3	42.9
4	57.2
5	71.5
6	85.8
7	100.1
8	114.4
9	128.7

147	
1	14.7
2	29.4
3	44.1
4	58.8
5	73.5
6	88.2
7	102.9
8	117.6
9	132.3

171	
1	17.1
2	34.2
3	51.3
4	68.4
5	85.5
6	102.6
7	119.7
8	136.8
9	153.9

57°

32°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.532384		0.628921		1.181331		1.878344		1.590024		0.846503		**50′** 0″
10	2425	41	8989	68	1367	36	8199	145	1.589853	171	6477	26	50
20	2466	41	9057	68	1403	36	8054	145	9682	171	6451	26	40
30	2507	41	9124	67	1439	36	7910	144	9511	171	6426	25	30
40	2548	41	9192	68	1475	36	7765	145	9340	171	6400	26	20
50	2589	41	9260	68	1511	36	7620	145	9169	171	6374	26	10
11 0	0.532630	41	0.629327	67	1.181547	36	1.877476	144	1.588998	171	0.846348	26	**49** 0
10	2671	41	9395	68	1583	36	7331	145	8827	171	6322	26	50
20	2712	41	9463	68	1619	36	7186	145	8656	171	6296	26	40
30	2753	41	9531	68	1655	36	7042	144	8485	171	6271	25	30
40	2794	41	9598	67	1691	36	6897	145	8315	170	6245	26	20
50	2835	41	9666	68	1727	36	6753	144	8144	171	6219	26	10
12 0	0.532876	41	0.629734	68	1.181763	36	1.876608	145	1.587973	171	0.846193	26	**48** 0
10	2917	41	9801	67	1799	36	6464	144	7802	171	6167	26	50
20	2958	41	9869	68	1835	36	6319	145	7632	170	6141	26	40
30	2999	41	0.629937	68	1872	37	6175	144	7461	171	6116	25	30
40	3040	41	0.630004	67	1908	36	6031	144	7290	171	6090	26	20
50	3081	41	0072	68	1944	36	5886	145	7120	170	6064	26	10
13 0	0.533122	41	0.630140	68	1.181980	36	1.875742	144	1.586949	171	0.846038	26	**47** 0
10	3163	41	0208	68	2016	36	5598	144	6779	170	6012	26	50
20	3204	41	0275	67	2052	36	5453	145	6608	171	5986	26	40
30	3245	41	0343	68	2088	36	5309	144	6438	170	5961	25	30
40	3286	41	0411	68	2124	36	5165	144	6267	171	5935	26	20
50	3327	41	0479	68	2160	36	5021	144	6097	170	5909	26	10
14 0	0.533368	41	0.630546	67	1.182197	37	1.874876	145	1.585926	171	0.845883	26	**46** 0
10	3409	41	0614	68	2233	36	4732	144	5756	170	5857	26	50
20	3450	41	0682	68	2269	36	4588	144	5585	171	5831	26	40
30	3492	42	0750	68	2305	36	4444	144	5415	170	5805	26	30
40	3533	41	0817	67	2341	36	4300	144	5245	170	5780	25	20
50	3574	41	0885	68	2377	36	4156	144	5074	171	5754	26	10
15 0	0.533615	41	0.630953	68	1.182414	37	1.874012	144	1.584904	170	0.845728	26	**45** 0
10	3656	41	1021	68	2450	36	3868	144	4734	170	5702	26	50
20	3697	41	1089	68	2486	36	3724	144	4564	170	5676	26	40
30	3738	41	1156	67	2522	36	3580	144	4393	171	5650	26	30
40	3779	41	1224	68	2558	36	3436	144	4223	170	5624	26	20
50	3820	41	1292	68	2594	36	3292	144	4053	170	5598	26	10
16 0	0.533861	41	0.631360	68	1.182631	37	1.873148	144	1.583883	170	0.845573	25	**44** 0
10	3901	40	1428	68	2667	36	3005	143	3713	170	5547	26	50
20	3942	41	1495	67	2703	36	2861	144	3543	170	5521	26	40
30	3983	41	1563	68	2739	36	2717	144	3373	170	5495	26	30
40	4024	41	1631	68	2775	36	2573	144	3203	170	5469	26	20
50	4065	41	1699	68	2812	37	2430	143	3033	170	5443	26	10
17 0	0.534106	41	0.631767	68	1.182848	36	1.872286	144	1.582863	170	0.845417	26	**43** 0
10	4147	41	1835	68	2884	36	2142	144	2693	170	5391	26	50
20	4188	41	1902	67	2920	36	1999	143	2523	170	5365	26	40
30	4229	41	1970	68	2957	37	1855	144	2353	170	5340	25	30
40	4270	41	2038	68	2993	36	1711	144	2183	170	5314	26	20
50	4311	41	2106	68	3029	36	1568	143	2013	170	5288	26	10
18 0	0.534352	41	0.632174	68	1.183065	36	1.871424	144	1.581844	169	0.845262	26	**42** 0
10	4393	41	2242	68	3102	37	1281	143	1674	170	5236	26	50
20	4434	41	2309	67	3138	36	1137	144	1504	170	5210	26	40
30	4475	41	2377	68	3174	36	0994	143	1334	170	5184	26	30
40	4516	41	2445	68	3210	36	0850	144	1165	169	5158	26	20
50	4557	41	2513	68	3247	37	0707	143	0995	170	5132	26	10
19 0	0.534598	41	0.632581	68	1.183283	36	1.870564	143	1.580825	170	0.845106	26	**41** 0
10	4639	41	2649	68	3319	36	0420	144	0656	169	5080	26	50
20	4680	41	2717	68	3356	37	0277	143	0486	170	5055	25	40
30	4721	41	2785	68	3392	36	1.870134	143	0316	170	5029	26	30
40	4762	41	2853	68	3428	36	1.869990	144	1.580147	169	5003	26	20
50	4803	41	2920	67	3465	37	9847	143	1.579977	170	4977	26	10
20 0	0.534844	41	0.632988	68	1.183501	36	1.869704	143	1.579808	169	0.844951	26	**40** 0
	cos		cotg		cosec		sec		tang		sin		

26

1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

36

1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

40

1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

42

1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

68

1	6.8
2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

145

1	14.5
2	29.0
3	43.5
4	58.0
5	72.5
6	87.0
7	101.5
8	116.0
9	130.5

169

1	16.9
2	33.8
3	50.7
4	67.6
5	84.5
6	101.4
7	118.3
8	135.2
9	152.1

173

1	17.3
2	34.6
3	51.9
4	69.2
5	86.5
6	103.8
7	121.1
8	138.4
9	155.7

57°

32°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.534844		0.632988		1.183501		1.869704		1.579808		0.844951		**40′** 0″
10	4885	41	3056	68	3537	36	9561	143	9638	170	4925	26	50
20	4926	41	3124	68	3573	36	9418	143	9469	169	4899	26	40
30	4967	41	3192	68	3610	37	9275	143	9300	169	4873	26	30
40	5008	41	3260	68	3646	36	9131	144	9130	170	4847	26	20
50	5049	41	3328	68	3682	36	8988	143	8961	169	4821	26	10
21 0	0.535090	41	0.633396	68	1.183719	37	1.868845	143	1.578792	169	0.844795	26	**39** 0
10	5131	41	3464	68	3755	36	8702	143	8622	170	4769	26	50
20	5172	41	3532	68	3792	37	8559	143	8453	169	4743	26	40
30	5213	41	3600	68	3828	36	8416	143	8284	169	4717	26	30
40	5254	41	3668	68	3864	36	8273	143	8114	170	4691	26	20
50	5295	41	3736	68	3901	37	8130	143	7945	169	4665	26	10
22 0	0.535335	40	0.633804	68	1.183937	36	1.867987	143	1.577776	169	0.844640	25	**38** 0
10	5376	41	3871	67	3973	36	7845	142	7607	169	4614	26	50
20	5417	41	3939	68	4010	37	7702	143	7438	169	4588	26	40
30	5458	41	4007	68	4046	36	7559	143	7269	169	4562	26	30
40	5499	41	4075	68	4083	37	7416	143	7100	169	4536	26	20
50	5540	41	4143	68	4119	36	7273	143	6931	169	4510	26	10
23 0	0.535581	41	0.634211	68	1.184155	36	1.867131	142	1.576761	170	0.844484	26	**37** 0
10	5622	41	4279	68	4192	37	6988	143	6592	169	4458	26	50
20	5663	41	4347	68	4228	36	6845	143	6424	168	4432	26	40
30	5704	41	4415	68	4265	37	6703	142	6255	169	4406	26	30
40	5745	41	4483	68	4301	36	6560	143	6086	169	4380	26	20
50	5786	41	4551	68	4338	37	6417	143	5917	169	4354	26	10
24 0	0.535827	41	0.634619	68	1.184374	36	1.866275	142	1.575748	169	0.844328	26	**36** 0
10	5868	41	4687	68	4410	36	6132	143	5579	169	4302	26	50
20	5909	41	4755	68	4447	37	5990	142	5410	169	4276	26	40
30	5950	41	4823	68	4483	36	5847	143	5241	169	4250	26	30
40	5991	41	4891	68	4520	37	5705	142	5073	168	4224	26	20
50	6031	40	4959	68	4556	36	5562	143	4904	169	4198	26	10
25 0	0.536072	41	0.635027	68	1.184593	37	1.865420	142	1.574735	169	0.844172	26	**35** 0
10	6113	41	5095	68	4629	36	5277	143	4566	169	4146	26	50
20	6154	41	5163	68	4666	37	5135	142	4398	168	4120	26	40
30	6195	41	5232	69	4702	36	4993	142	4229	169	4094	26	30
40	6236	41	5300	68	4739	37	4850	143	4061	168	4068	26	20
50	6277	41	5368	68	4775	36	4708	142	3892	169	4042	26	10
26 0	0.536318	41	0.635436	68	1.184812	37	1.864566	142	1.573723	169	0.844016	26	**34** 0
10	6359	41	5504	68	4848	36	4423	143	3555	168	3990	26	50
20	6400	41	5572	68	4885	37	4281	142	3386	169	3964	26	40
30	6441	41	5640	68	4921	36	4139	142	3218	168	3938	26	30
40	6482	41	5708	68	4958	37	3997	142	3049	169	3912	26	20
50	6522	40	5776	68	4994	36	3855	142	2881	168	3886	26	10
27 0	0.536563	41	0.635844	68	1.185031	37	1.863713	142	1.572713	168	0.843860	26	**33** 0
10	6604	41	5912	68	5067	36	3571	142	2544	169	3834	26	50
20	6645	41	5980	68	5104	37	3428	143	2376	168	3808	26	40
30	6686	41	6048	68	5140	36	3286	142	2207	169	3782	26	30
40	6727	41	6116	68	5177	37	3144	142	2039	168	3756	26	20
50	6768	41	6185	69	5213	36	3002	142	1871	168	3730	26	10
28 0	0.536809	41	0.636253	68	1.185250	37	1.862860	142	1.571703	168	0.843704	26	**32** 0
10	6850	41	6321	68	5287	37	2719	141	1534	169	3678	26	50
20	6891	41	6389	68	5323	36	2577	142	1366	168	3652	26	40
30	6932	41	6457	68	5360	37	2435	142	1198	168	3626	26	30
40	6972	40	6525	68	5396	36	2293	142	1030	168	3600	26	20
50	7013	41	6593	68	5433	37	2151	142	0862	168	3574	26	10
29 0	0.537054	41	0.636661	68	1.185469	36	1.862009	142	1.570694	168	0.843548	26	**31** 0
10	7095	41	6730	69	5506	37	1867	142	0526	168	3522	26	50
20	7136	41	6798	68	5543	37	1726	141	0358	168	3496	26	40
30	7177	41	6866	68	5579	36	1584	142	0189	169	3470	26	30
40	7218	41	6934	68	5616	37	1442	142	1.570021	168	3444	26	20
50	7259	41	7002	68	5652	36	1301	141	1.569854	167	3417	27	10
30 0	0.537300	41	0.637070	68	1.185689	37	1.861159	142	1.569686	168	0.843391	26	**30** 0
	cos		cotg		cosec		sec		tang		sin		

25

1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

27

1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

37

1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

41

1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

68

1	6.8
2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

140

1	14.0
2	28.0
3	42.0
4	56.0
5	70.0
6	84.0
7	98.0
8	112.0
9	126.0

144

1	14.4
2	28.8
3	43.2
4	57.6
5	72.0
6	86.4
7	100.8
8	115.2
9	129.6

168

1	16.8
2	33.6
3	50.4
4	67.2
5	84.0
6	100.8
7	117.6
8	134.4
9	151.2

57°

32°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.537300		0.637070		1.185689		1.861159		1.569686		0.843391		**30′** 0″
10	7340	40	7138	68	5726	37	1017	142	9518	168	3365	26	50
20	7381	41	7207	69	5762	36	0876	141	9350	168	3339	26	40
30	7422	41	7275	68	5799	37	0734	142	9182	168	3313	26	30
40	7463	41	7343	68	5836	37	0593	141	9014	168	3287	26	20
50	7504	41	7411	68	5872	36	0451	142	8846	168	3261	26	10
31 0	0.537545	41	0.637479	68	1.185909	37	1.860310	141	1.568678	168	0.843235	26	**29** 0
10	7586	41	7547	68	5946	37	0168	142	8511	167	3209	26	50
20	7627	41	7616	69	5982	36	1.860027	141	8343	168	3183	26	40
30	7668	41	7684	68	6019	37	1.859885	142	8175	168	3157	26	30
40	7708	40	7752	68	6056	37	9744	141	8008	167	3131	26	20
50	7749	41	7820	68	6092	36	9603	141	7840	168	3105	26	10
32 0	0.537790	41	0.637888	68	1.186129	37	1.859461	142	1.567672	168	0.843079	26	**28** 0
10	7831	41	7957	69	6166	37	9320	141	7505	167	3053	26	50
20	7872	41	8025	68	6202	36	9179	141	7337	168	3027	26	40
30	7913	41	8093	68	6239	37	9037	142	7169	168	3000	27	30
40	7954	41	8161	68	6276	37	8896	141	7002	167	2974	26	20
50	7995	41	8230	69	6312	36	8755	141	6834	168	2948	26	10
33 0	0.538035	40	0.638298	68	1.186349	37	1.858614	141	1.566667	167	0.842922	26	**27** 0
10	8076	41	8366	68	6386	37	8473	141	6499	168	2896	26	50
20	8117	41	8434	68	6422	36	8331	142	6332	167	2870	26	40
30	8158	41	8503	69	6459	37	8190	141	6165	167	2844	26	30
40	8199	41	8571	68	6496	37	8049	141	5997	168	2818	26	20
50	8240	41	8639	68	6533	37	7908	141	5830	167	2792	26	10
34 0	0.538281	41	0.638707	68	1.186569	36	1.857767	141	1.565662	168	0.842766	26	**26** 0
10	8321	40	8776	69	6606	37	7626	141	5495	167	2740	26	50
20	8362	41	8844	68	6643	37	7485	141	5328	167	2714	26	40
30	8403	41	8912	68	6680	37	7344	141	5161	167	2687	27	30
40	8444	41	8980	68	6716	36	7203	141	4993	168	2661	26	20
50	8485	41	9049	69	6753	37	7062	141	4826	167	2635	26	10
35 0	0.538526	41	0.639117	68	1.186790	37	1.856922	140	1.564659	167	0.842609	26	**25** 0
10	8567	41	9185	68	6827	37	6781	141	4492	167	2583	26	50
20	8607	40	9253	68	6864	37	6640	141	4325	167	2557	26	40
30	8648	41	9322	69	6900	36	6499	141	4158	167	2531	26	30
40	8689	41	9390	68	6937	37	6358	141	3991	167	2505	26	20
50	8730	41	9458	68	6974	37	6218	140	3823	168	2479	26	10
36 0	0.538771	41	0.639527	69	1.187011	37	1.856077	141	1.563656	167	0.842452	27	**24** 0
10	8812	41	9595	68	7047	36	5936	141	3489	167	2426	26	50
20	8852	40	9663	68	7084	37	5796	140	3322	167	2400	26	40
30	8893	41	9732	69	7121	37	5655	141	3155	167	2374	26	30
40	8934	41	9800	68	7158	37	5514	141	2989	166	2348	26	20
50	8975	41	9868	68	7195	37	5374	140	2822	167	2322	26	10
37 0	0.539016	41	0.639937	69	1.187232	37	1.855233	141	1.562655	167	0.842296	26	**23** 0
10	9057	41	0.640005	68	7268	36	5093	140	2488	167	2270	26	50
20	9097	40	0073	68	7305	37	4952	141	2321	167	2243	27	40
30	9138	41	0142	69	7342	37	4812	140	2154	167	2217	26	30
40	9179	41	0210	68	7379	37	4671	141	1987	167	2191	26	20
50	9220	41	0278	68	7416	37	4531	140	1821	166	2165	26	10
38 0	0.539261	41	0.640347	69	1.187453	37	1.854390	141	1.561654	167	0.842139	26	**22** 0
10	9302	41	0415	68	7490	37	4250	140	1487	167	2113	26	50
20	9342	40	0483	68	7526	36	4110	140	1321	166	2087	26	40
30	9383	41	0552	69	7563	37	3969	141	1154	167	2060	27	30
40	9424	41	0620	68	7600	37	3829	140	0987	167	2034	26	20
50	9465	41	0689	69	7637	37	3689	140	0821	166	2008	26	10
39 0	0.539506	41	0.640757	68	1.187674	37	1.853548	141	1.560654	167	0.841982	26	**21** 0
10	9547	41	0825	68	7711	37	3408	140	0488	166	1956	26	50
20	9587	40	0894	69	7748	37	3268	140	0321	167	1930	26	40
30	9628	41	0962	68	7785	37	3128	140	1.560155	166	1903	27	30
40	9669	41	1031	69	7822	37	2988	140	1.559988	167	1877	26	20
50	9710	41	1099	68	7859	37	2847	141	9822	166	1851	26	10
40 0	0.539751	41	0.641167	68	1.187895	36	1.852707	140	1.559655	167	0.841825	26	**20** 0
	cos		cotg		cosec		sec		tang		sin		

26	
1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

67	
1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

69	
1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

142	
1	14.2
2	28.4
3	42.6
4	56.8
5	71.0
6	85.2
7	99.4
8	113.6
9	127.8

166	
1	16.6
2	33.2
3	49.8
4	66.4
5	83.0
6	99.6
7	116.2
8	132.8
9	149.4

170	
1	17.0
2	34.0
3	51.0
4	68.0
5	85.0
6	102.0
7	119.0
8	136.0
9	153.0

57°

32°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.539751		0.641167		1.187895		1.852707		1.559655		0.841825		**20′** 0″
10	9791	40	1236	69	7932	37	2567	140	9489	166	1799	26	50
20	9832	41	1304	68	7969	37	2427	140	9322	167	1773	26	40
30	9873	41	1373	69	8006	37	2287	140	9156	166	1746	27	30
40	9914	41	1441	68	8043	37	2147	140	8990	166	1720	26	20
50	9955	41	1509	68	8080	37	2007	140	8823	167	1694	26	10
41 0	0.539996	41	0.641578	69	1.188117	37	1.851867	140	1.558657	166	0.841668	26	**19** 0
10	0.540036	40	1646	68	8154	37	1727	140	8491	166	1642	26	50
20	0077	41	1715	69	8191	37	1587	140	8325	166	1616	26	40
30	0118	41	1783	68	8228	37	1448	139	8159	166	1589	27	30
40	0159	41	1852	69	8265	37	1308	140	7992	167	1563	26	20
50	0200	41	1920	68	8302	37	1168	140	7826	166	1537	26	10
42 0	0.540240	40	0.641989	69	1.188339	37	1.851028	140	1.557660	166	0.841511	26	**18** 0
10	0281	41	2057	68	8376	37	0888	140	7494	166	1485	26	50
20	0322	41	2126	69	8413	37	0749	139	7328	166	1458	27	40
30	0363	41	2194	68	8450	37	0609	140	7162	166	1432	26	30
40	0404	41	2262	68	8487	37	0469	140	6996	166	1406	26	20
50	0444	40	2331	69	8524	37	0329	140	6830	166	1380	26	10
43 0	0.540485	41	0.642399	68	1.188561	37	1.850190	139	1.556664	166	0.841354	26	**17** 0
10	0526	41	2468	69	8598	37	1.850050	140	6498	166	1327	27	50
20	0567	41	2536	68	8635	37	1.849911	139	6332	166	1301	26	40
30	0607	40	2605	69	8672	37	9771	140	6166	166	1275	26	30
40	0648	41	2673	68	8709	37	9631	140	6000	166	1249	26	20
50	0689	41	2742	69	8746	37	9492	139	5834	166	1223	26	10
44 0	0.540730	41	0.642810	68	1.188783	37	1.849352	140	1.555669	165	0.841196	27	**16** 0
10	0771	41	2879	69	8820	37	9213	139	5503	166	1170	26	50
20	0811	40	2947	68	8857	37	9074	139	5337	166	1144	26	40
30	0852	41	3016	69	8894	37	8934	140	5171	166	1118	26	30
40	0893	41	3085	69	8931	37	8795	139	5005	166	1091	27	20
50	0934	41	3153	68	8968	37	8655	140	4840	165	1065	26	10
45 0	0.540974	40	0.643222	69	1.189005	37	1.848516	139	1.554674	166	0.841039	26	**15** 0
10	1015	41	3290	68	9043	38	8377	139	4508	166	1013	26	50
20	1056	41	3359	69	9080	37	8237	140	4343	165	0987	26	40
30	1097	41	3427	68	9117	37	8098	139	4177	166	0960	27	30
40	1138	41	3496	69	9154	37	7959	139	4012	165	0934	26	20
50	1178	40	3564	68	9191	37	7820	139	3846	166	0908	26	10
46 0	0.541219	41	0.643633	69	1.189228	37	1.847681	139	1.553681	165	0.840882	26	**14** 0
10	1260	41	3701	68	9265	37	7541	140	3515	166	0855	27	50
20	1301	41	3770	69	9302	37	7402	139	3350	165	0829	26	40
30	1341	40	3839	69	9339	37	7263	139	3184	166	0803	26	30
40	1382	41	3907	68	9377	38	7124	139	3019	165	0777	26	20
50	1423	41	3976	69	9414	37	6985	139	2853	166	0750	27	10
47 0	0.541464	41	0.644044	68	1.189451	37	1.846846	139	1.552688	165	0.840724	26	**13** 0
10	1504	40	4113	69	9488	37	6707	139	2523	165	0698	26	50
20	1545	41	4182	69	9525	37	6568	139	2357	166	0672	26	40
30	1586	41	4250	68	9562	37	6429	139	2192	165	0645	27	30
40	1627	41	4319	69	9599	37	6290	139	2027	165	0619	26	20
50	1667	40	4387	68	9637	38	6151	139	1861	166	0593	26	10
48 0	0.541708	41	0.644456	69	1.189674	37	1.846012	139	1.551696	165	0.840567	26	**12** 0
10	1749	41	4525	69	9711	37	5873	139	1531	165	0540	27	50
20	1790	41	4593	68	9748	37	5735	138	1366	165	0514	26	40
30	1830	40	4662	69	9785	37	5596	139	1201	165	0488	26	30
40	1871	41	4731	69	9822	37	5457	139	1036	165	0462	26	20
50	1912	41	4799	68	9860	38	5318	139	0871	165	0435	27	10
49 0	0.541953	41	0.644868	69	1.189897	37	1.845179	139	1.550705	166	0.840409	26	**11** 0
10	1993	40	4936	68	9934	37	5041	138	0540	165	0383	26	50
20	2034	41	5005	69	1.189971	37	4902	139	0375	165	0356	27	40
30	2075	41	5074	69	1.190008	37	4763	139	0210	165	0330	26	30
40	2116	41	5142	68	0046	38	4625	138	1.550045	165	0304	26	20
50	2156	40	5211	69	0083	37	4486	139	1.549880	165	0278	26	10
50 0	0.542197	41	0.645280	69	1.190120	37	1.844348	138	1.549715	165	0.840251	27	**10** 0
	cos		cotg		cosec		sec		tang		sin		

26	
1	2.6
2	5.2
3	7.8
4	10.4
5	13.0
6	15.6
7	18.2
8	20.8
9	23.4

37	
1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

68	
1	6.8
2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

137	
1	13.7
2	27.4
3	41.1
4	54.8
5	68.5
6	82.2
7	95.9
8	109.6
9	123.3

139	
1	13.9
2	27.8
3	41.7
4	55.6
5	69.5
6	83.4
7	97.3
8	111.2
9	125.1

163	
1	16.3
2	32.6
3	48.9
4	65.2
5	81.5
6	97.8
7	114.1
8	130.4
9	146.7

166	
1	16.6
2	33.2
3	49.8
4	66.4
5	83.0
6	99.6
7	116.2
8	132.8
9	149.4

57°

32°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.542197		0.645280		1.190120		1.844348		1.549715		0.840251		**10′** 0″
10	2238	41	5348	68	0157	37	4209	139	9551	164	0225	26	50
20	2279	41	5417	69	0195	38	4071	138	9386	165	0199	26	40
30	2319	40	5486	69	0232	37	3932	139	9221	165	0172	27	30
40	2360	41	5554	68	0269	37	3794	138	9056	165	0146	26	20
50	2401	41	5623	69	0306	37	3655	139	8891	165	0120	26	10
51 0	0.542442	41	0.645692	69	1.190344	38	1.843517	138	1.548726	165	0.840094	26	**9** 0
10	2482	40	5761	69	0381	37	3378	139	8562	164	0067	27	50
20	2523	41	5829	68	0418	37	3240	138	8397	165	0041	26	40
30	2564	41	5898	69	0455	37	3101	139	8232	165	0.840015	26	30
40	2604	40	5967	69	0493	38	2963	138	8068	164	0.839988	27	20
50	2645	41	6035	68	0530	37	2825	138	7903	165	9962	26	10
52 0	0.542686	41	0.646104	69	1.190567	37	1.842687	138	1.547738	165	0.839936	26	**8** 0
10	2727	41	6173	69	0605	38	2548	139	7574	164	9909	27	50
20	2767	40	6242	69	0642	37	2410	138	7409	165	9883	26	40
30	2808	41	6310	68	0679	37	2272	138	7245	164	9857	26	30
40	2849	41	6379	69	0716	37	2134	138	7080	165	9830	27	20
50	2889	40	6448	69	0754	38	1996	138	6916	164	9804	26	10
53 0	0.542930	41	0.646516	68	1.190791	37	1.841857	139	1.546751	165	0.839778	26	**7** 0
10	2971	41	6585	69	0828	37	1719	138	6587	164	9752	26	50
20	3012	41	6654	69	0866	38	1581	138	6422	165	9725	27	40
30	3052	40	6723	69	0903	37	1443	138	6258	164	9699	26	30
40	3093	41	6791	68	0940	37	1305	138	6093	165	9673	26	20
50	3134	41	6860	69	0978	38	1167	138	5929	164	9646	27	10
54 0	0.543174	40	0.646929	69	1.191015	37	1.841029	138	1.545765	164	0.839620	26	**6** 0
10	3215	41	6998	69	1053	38	0891	138	5600	165	9594	26	50
20	3256	41	7067	69	1090	37	0753	138	5436	164	9567	27	40
30	3297	41	7135	68	1127	37	0615	138	5272	164	9541	26	30
40	3337	40	7204	69	1165	38	0477	138	5108	164	9515	26	20
50	3378	41	7273	69	1202	37	0340	137	4943	165	9488	27	10
55 0	0.543419	41	0.647342	69	1.191239	37	1.840202	138	1.544779	164	0.839462	26	**5** 0
10	3459	40	7411	69	1277	38	1.840064	138	4615	164	9435	27	50
20	3500	41	7479	68	1314	37	1.839926	138	4451	164	9409	26	40
30	3541	41	7548	69	1352	38	9788	138	4287	164	9383	26	30
40	3581	40	7617	69	1389	37	9651	137	4123	164	9356	27	20
50	3622	41	7686	69	1426	37	9513	138	3959	164	9330	26	10
56 0	0.543663	41	0.647755	69	1.191464	38	1.839375	138	1.543795	164	0.839304	26	**4** 0
10	3704	41	7823	68	1501	37	9238	137	3631	164	9277	27	50
20	3744	40	7892	69	1539	38	9100	138	3467	164	9251	26	40
30	3785	41	7961	69	1576	37	8962	138	3303	164	9225	26	30
40	3826	41	8030	69	1614	38	8825	137	3139	164	9198	27	20
50	3866	40	8099	69	1651	37	8687	138	2975	164	9172	26	10
57 0	0.543907	41	0.648168	69	1.191688	37	1.838550	137	1.542811	164	0.839146	26	**3** 0
10	3948	41	8236	68	1726	38	8412	138	2647	164	9119	27	50
20	3988	40	8305	69	1763	37	8275	137	2483	164	9093	26	40
30	4029	41	8374	69	1801	38	8137	138	2319	164	9066	27	30
40	4070	41	8443	69	1838	37	8000	137	2156	163	9040	26	20
50	4110	40	8512	69	1876	38	7862	138	1992	164	9014	26	10
58 0	0.544151	41	0.648581	69	1.191913	37	1.837725	137	1.541828	164	0.838987	27	**2** 0
10	4192	41	8650	69	1951	38	7588	137	1664	164	8961	26	50
20	4232	40	8719	69	1988	37	7450	138	1501	163	8935	26	40
30	4273	41	8787	68	2026	38	7313	137	1337	164	8908	27	30
40	4314	41	8856	69	2063	37	7176	137	1173	164	8882	26	20
50	4354	40	8925	69	2101	38	7039	137	1010	163	8855	27	10
59 0	0.544395	41	0.648994	69	1.192138	37	1.836901	138	1.540846	164	0.838829	26	**1** 0
10	4436	41	9063	69	2176	38	6764	137	0682	164	8803	26	50
20	4476	40	9132	69	2213	37	6627	137	0519	163	8776	27	40
30	4517	41	9201	69	2251	38	6490	137	0355	164	8750	26	30
40	4558	41	9270	69	2288	37	6353	137	0192	163	8723	27	20
50	4598	40	9339	69	2326	38	6216	137	1.540028	164	8697	26	10
60 0	0.544639	41	0.649408	69	1.192363	37	1.836078	138	1.539865	163	0.838671	26	**0** 0
	cos		cotg		cosec		sec		tang		sin		

27	
1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

69	
1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

138	
1	13.8
2	27.6
3	41.4
4	55.2
5	69.0
6	82.8
7	96.6
8	110.4
9	124.2

140	
1	14.0
2	28.0
3	42.0
4	56.0
5	70.0
6	84.0
7	98.0
8	112.0
9	126.0

165	
1	16.5
2	33.0
3	49.5
4	66.0
5	82.5
6	99.0
7	115.5
8	132.0
9	148.5

167	
1	16.7
2	33.4
3	50.1
4	66.8
5	83.5
6	100.2
7	116.9
8	133.6
9	150.3

57°

33°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.544639		0.649408		1.192363		1.836078		1.539865		0.838671		**60′** 0″
10	4680	41	9477	69	2401	38	5941	137	9702	163	8644	27	50
20	4720	40	9545	68	2438	37	5804	137	9538	164	8618	26	40
30	4761	41	9614	69	2476	38	5667	137	9375	163	8591	27	30
40	4802	41	9683	69	2513	37	5530	137	9211	164	8565	26	20
50	4842	40	9752	69	2551	38	5393	137	9048	163	8539	26	10
1 0	0.544883	41	0.649821	69	1.192589	38	1.835256	137	1.538885	163	0.838512	27	**59** 0
10	4924	41	9890	69	2626	37	5120	136	8721	164	8486	26	50
20	4964	40	0.649959	69	2664	38	4983	137	8558	163	8459	27	40
30	5005	41	0.650028	69	2701	37	4846	137	8395	163	8433	26	30
40	5046	41	0097	69	2739	38	4709	137	8232	163	8406	27	20
50	5086	40	0166	69	2777	38	4572	137	8069	163	8380	26	10
2 0	0.545127	41	0.650235	69	1.192814	37	1.834435	137	1.537905	164	0.838354	26	**58** 0
10	5168	41	0304	69	2852	38	4299	136	7742	163	8327	27	50
20	5208	40	0373	69	2889	37	4162	137	7579	163	8301	26	40
30	5249	41	0442	69	2927	38	4025	137	7416	163	8274	27	30
40	5289	40	0511	69	2965	38	3888	137	7253	163	8248	26	20
50	5330	41	0580	69	3002	37	3752	136	7090	163	8221	27	10
3 0	0.545371	41	0.650649	69	1.193040	38	1.833615	137	1.536927	163	0.838195	26	**57** 0
10	5411	40	0718	69	3077	37	3479	136	6764	163	8169	26	50
20	5452	41	0787	69	3115	38	3342	137	6601	163	8142	27	40
30	5493	41	0856	69	3153	38	3205	137	6438	163	8116	26	30
40	5533	40	0925	69	3190	37	3069	136	6275	163	8089	27	20
50	5574	41	0994	69	3228	38	2932	137	6112	163	8063	26	10
4 0	0.545615	41	0.651063	69	1.193266	38	1.832796	136	1.535949	163	0.838036	27	**56** 0
10	5655	40	1132	69	3303	37	2659	137	5787	162	8010	26	50
20	5696	41	1201	69	3341	38	2523	136	5624	163	7983	27	40
30	5736	40	1270	69	3379	38	2387	136	5461	163	7957	26	30
40	5777	41	1339	69	3416	37	2250	137	5298	163	7930	27	20
50	5818	41	1408	69	3454	38	2114	136	5135	163	7904	26	10
5 0	0.545858	40	0.651477	69	1.193492	38	1.831977	137	1.534973	162	0.837878	26	**55** 0
10	5899	41	1546	69	3530	38	1841	136	4810	163	7851	27	50
20	5939	40	1615	69	3567	37	1705	136	4647	163	7825	26	40
30	5980	41	1685	70	3605	38	1569	136	4485	162	7798	27	30
40	6021	41	1754	69	3643	38	1432	137	4322	163	7772	26	20
50	6061	40	1823	69	3680	37	1296	136	4159	163	7745	27	10
6 0	0.546102	41	0.651892	69	1.193718	38	1.831160	136	1.533997	162	0.837719	26	**54** 0
10	6143	41	1961	69	3756	38	1024	136	3834	163	7692	27	50
20	6183	40	2030	69	3794	38	0888	136	3672	162	7666	26	40
30	6224	41	2099	69	3831	37	0751	137	3509	163	7639	27	30
40	6264	40	2168	69	3869	38	0615	136	3347	162	7613	26	20
50	6305	41	2237	69	3907	38	0479	136	3184	163	7586	27	10
7 0	0.546346	41	0.652306	69	1.193945	38	1.830343	136	1.533022	162	0.837560	26	**53** 0
10	6386	40	2375	69	3982	37	0207	136	2860	162	7533	27	50
20	6427	41	2445	70	4020	38	1.830071	136	2697	163	7507	26	40
30	6467	40	2514	69	4058	38	1.829935	136	2535	162	7480	27	30
40	6508	41	2583	69	4096	38	9799	136	2372	163	7454	26	20
50	6549	41	2652	69	4133	37	9663	136	2210	162	7427	27	10
8 0	0.546589	40	0.652721	69	1.194171	38	1.829527	136	1.532048	162	0.837401	26	**52** 0
10	6630	41	2790	69	4209	38	9392	135	1886	162	7374	27	50
20	6670	40	2859	69	4247	38	9256	136	1723	163	7348	26	40
30	6711	41	2929	70	4285	38	9120	136	1561	162	7321	27	30
40	6752	41	2998	69	4322	37	8984	136	1399	162	7295	26	20
50	6792	40	3067	69	4360	38	8848	136	1237	162	7268	27	10
9 0	0.546833	41	0.653136	69	1.194398	38	1.828713	135	1.531075	162	0.837242	26	**51** 0
10	6873	40	3205	69	4436	38	8577	136	0913	162	7215	27	50
20	6914	41	3274	69	4474	38	8441	136	0750	163	7189	26	40
30	6955	41	3344	70	4512	38	8305	136	0588	162	7162	27	30
40	6995	40	3413	69	4549	37	8170	135	0426	162	7136	26	20
50	7036	41	3482	69	4587	38	8034	136	0264	162	7109	27	10
10 0	0.547076	40	0.653551	69	1.194625	38	1.827899	135	1.530102	162	0.837083	26	**50** 0
	cos		cotg		cosec		sec		tang		sin		

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9	23.4

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9	33.3

39	
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3	11.7
4	15.6
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6	23.4
7	27.3
8	31.2
9	35.1

41	
1	4.1
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3	12.3
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7	28.7
8	32.8
9	36.9

69	
1	6.9
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5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

134	
1	13.4
2	26.8
3	40.2
4	53.6
5	67.0
6	80.4
7	93.8
8	107.2
9	120.6

137	
1	13.7
2	27.4
3	41.1
4	54.8
5	68.5
6	82.2
7	95.9
8	109.6
9	123.3

162	
1	16.2
2	32.4
3	48.6
4	64.8
5	81.0
6	97.2
7	113.4
8	129.6
9	145.8

56°

33°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.547076		0.653551		1.194625		1.827899		1.530102		0.837083		**50′** 0″
10	7117	41	3620	69	4663	38	7763	136	1.529940	162	7056	27	50
20	7157	40	3689	69	4701	38	7627	136	9778	162	7030	26	40
30	7198	41	3759	70	4739	38	7492	135	9616	162	7003	27	30
40	7239	41	3828	69	4776	37	7356	136	9455	161	6977	26	20
50	7279	40	3897	69	4814	38	7221	135	9293	162	6950	27	10
11 0	0.547320	41	0.653966	69	1.194852	38	1.827085	136	1.529131	162	0.836924	26	**49** 0
10	7360	40	4036	70	4890	38	6950	135	8969	162	6897	27	50
20	7401	41	4105	69	4928	38	6815	135	8807	162	6870	27	40
30	7442	41	4174	69	4966	38	6679	136	8645	162	6844	26	30
40	7482	40	4243	69	5004	38	6544	135	8484	161	6817	27	20
50	7523	41	4312	69	5042	38	6408	136	8322	162	6791	26	10
12 0	0.547563	40	0.654382	70	1.195080	38	1.826273	135	1.528160	162	0.836764	27	**48** 0
10	7604	41	4451	69	5118	38	6138	135	7998	162	6738	26	50
20	7644	40	4520	69	5155	37	6003	135	7837	161	6711	27	40
30	7685	41	4589	69	5193	38	5867	136	7675	162	6685	26	30
40	7725	40	4659	70	5231	38	5732	135	7514	161	6658	27	20
50	7766	41	4728	69	5269	38	5597	135	7352	162	6632	26	10
13 0	0.547807	41	0.654797	69	1.195307	38	1.825462	135	1.527190	162	0.836605	27	**47** 0
10	7847	40	4866	69	5345	38	5327	135	7029	161	6578	27	50
20	7888	41	4936	70	5383	38	5191	136	6867	162	6552	26	40
30	7928	40	5005	69	5421	38	5056	135	6706	161	6525	27	30
40	7969	41	5074	69	5459	38	4921	135	6544	162	6499	26	20
50	8009	40	5144	70	5497	38	4786	135	6383	161	6472	27	10
14 0	0.548050	41	0.655213	69	1.195535	38	1.824651	135	1.526222	161	0.836446	26	**46** 0
10	8090	40	5282	69	5573	38	4516	135	6060	162	6419	27	50
20	8131	41	5351	69	5611	38	4381	135	5899	161	6392	27	40
30	8172	41	5421	70	5649	38	4246	135	5737	162	6366	26	30
40	8212	40	5490	69	5687	38	4111	135	5576	161	6339	27	20
50	8253	41	5559	69	5725	38	3976	135	5415	161	6313	26	10
15 0	0.548293	40	0.655629	70	1.195763	38	1.823842	134	1.525253	162	0.836286	27	**45** 0
10	8334	41	5698	69	5801	38	3707	135	5092	161	6260	26	50
20	8374	40	5767	69	5839	38	3572	135	4931	161	6233	27	40
30	8415	41	5837	70	5877	38	3437	135	4770	161	6206	27	30
40	8455	40	5906	69	5915	38	3302	135	4609	161	6180	26	20
50	8496	41	5975	69	5953	38	3168	134	4447	162	6153	27	10
16 0	0.548536	40	0.656045	70	1.195991	38	1.823033	135	1.524286	161	0.836127	26	**44** 0
10	8577	41	6114	69	6029	38	2898	135	4125	161	6100	27	50
20	8618	41	6183	69	6067	38	2763	135	3964	161	6073	27	40
30	8658	40	6253	70	6105	38	2629	134	3803	161	6047	26	30
40	8699	41	6322	69	6143	38	2494	135	3642	161	6020	27	20
50	8739	40	6392	70	6181	38	2360	134	3481	161	5994	26	10
17 0	0.548780	41	0.656461	69	1.196219	38	1.822225	135	1.523320	161	0.835967	27	**43** 0
10	8820	40	6530	69	6257	38	2090	135	3159	161	5940	27	50
20	8861	41	6600	70	6296	39	1956	134	2998	161	5914	26	40
30	8901	40	6669	69	6334	38	1821	135	2837	161	5887	27	30
40	8942	41	6738	69	6372	38	1687	134	2676	161	5861	26	20
50	8982	40	6808	70	6410	38	1552	135	2515	161	5834	27	10
18 0	0.549023	41	0.656877	69	1.196448	38	1.821418	134	1.522355	160	0.835807	27	**42** 0
10	9063	40	6947	70	6486	38	1284	134	2194	161	5781	26	50
20	9104	41	7016	69	6524	38	1149	135	2033	161	5754	27	40
30	9144	40	7085	69	6562	38	1015	134	1872	161	5728	26	30
40	9185	41	7155	70	6600	38	0880	135	1711	161	5701	27	20
50	9225	40	7224	69	6639	39	0746	134	1551	160	5674	27	10
19 0	0.549266	41	0.657294	70	1.196677	38	1.820612	134	1.521390	161	0.835648	26	**41** 0
10	9306	40	7363	69	6715	38	0477	135	1229	161	5621	27	50
20	9347	41	7433	70	6753	38	0343	134	1069	160	5594	27	40
30	9387	40	7502	69	6791	38	0209	134	0908	161	5568	26	30
40	9428	41	7571	69	6829	38	1.820075	134	0747	161	5541	27	20
50	9468	40	7641	70	6867	38	1.819941	134	0587	160	5514	27	10
20 0	0.549509	41	0.657710	69	1.196906	39	1.819806	135	1.520426	161	0.835488	26	**40** 0
	cos		cotg		cosec		sec		tang		sin		

27	
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9	24.3

38	
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2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40	
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2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

68	
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2	13.6
3	20.4
4	27.2
5	34.0
6	40.8
7	47.6
8	54.4
9	61.2

70	
1	7.0
2	14.0
3	21.0
4	28.0
5	35.0
6	42.0
7	49.0
8	56.0
9	63.0

135	
1	13.5
2	27.0
3	40.5
4	54.0
5	67.5
6	81.0
7	94.5
8	108.0
9	121.5

160	
1	16.0
2	32.0
3	48.0
4	64.0
5	80.0
6	96.0
7	112.0
8	128.0
9	144.0

164	
1	16.4
2	32.8
3	49.2
4	65.6
5	82.0
6	98.4
7	114.8
8	131.2
9	147.6

56°

33°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.549509		0.657710		1.196906		1.819806		1.520426		0.835488		**40′** 0″
10	9549	40	7780	70	6944	38	9672	134	0266	160	5461	27	50
20	9590	41	7849	69	6982	38	9538	134	1.520105	161	5435	26	40
30	9630	40	7919	70	7020	38	9404	134	1.519945	160	5408	27	30
40	9671	41	7988	69	7058	38	9270	134	9784	161	5381	27	20
50	9711	40	8058	70	7096	38	9136	134	9624	160	5355	26	10
21 0	0.549752	41	0.658127	69	1.197135	39	1.819002	134	1.519463	161	0.835328	27	**39** 0
10	9792	40	8197	70	7173	38	8868	134	9303	160	5301	27	50
20	9833	41	8266	69	7211	38	8734	134	9142	161	5275	26	40
30	9873	40	8336	70	7249	38	8600	134	8982	160	5248	27	30
40	9914	41	8405	69	7287	38	8466	134	8822	160	5221	27	20
50	9954	40	8475	70	7326	39	8332	134	8661	161	5195	26	10
22 0	0.549995	41	0.658544	69	1.197364	38	1.818199	133	1.518501	160	0.835168	27	**38** 0
10	0.550035	40	8614	70	7402	38	8065	134	8341	160	5141	27	50
20	0076	41	8683	69	7440	38	7931	134	8181	160	5115	26	40
30	0116	40	8753	70	7479	39	7797	134	8020	161	5088	27	30
40	0157	41	8822	69	7517	38	7663	134	7860	160	5061	27	20
50	0197	40	8892	70	7555	38	7530	133	7700	160	5035	26	10
23 0	0.550238	41	0.658961	69	1.197593	38	1.817396	134	1.517540	160	0.835008	27	**37** 0
10	0278	40	9031	70	7632	39	7262	134	7380	160	4981	27	50
20	0319	41	9100	69	7670	38	7128	134	7220	160	4955	26	40
30	0359	40	9170	70	7708	38	6995	133	7060	160	4928	27	30
40	0400	41	9239	69	7746	38	6861	134	6900	160	4901	27	20
50	0440	40	9309	70	7785	39	6728	133	6740	160	4875	26	10
24 0	0.550481	41	0.659379	70	1.197823	38	1.816594	134	1.516580	160	0.834848	27	**36** 0
10	0521	40	9448	69	7861	38	6460	134	6420	160	4821	27	50
20	0562	41	9518	70	7900	39	6327	133	6260	160	4794	27	40
30	0602	40	9587	69	7938	38	6193	134	6100	160	4768	26	30
40	0643	41	9657	70	7976	38	6060	133	5940	160	4741	27	20
50	0683	40	9726	69	8015	39	5926	134	5780	160	4714	27	10
25 0	0.550724	41	0.659796	70	1.198053	38	1.815793	133	1.515620	160	0.834688	26	**35** 0
10	0764	40	9866	70	8091	38	5660	133	5460	160	4661	27	50
20	0804	40	0.659935	69	8130	39	5526	134	5300	160	4634	27	40
30	0845	41	0.660005	70	8168	38	5393	133	5141	159	4608	26	30
40	0885	40	0074	69	8206	38	5260	133	4981	160	4581	27	20
50	0926	41	0144	70	8245	39	5126	134	4821	160	4554	27	10
26 0	0.550966	40	0.660214	70	1.198283	38	1.814993	133	1.514661	160	0.834527	27	**34** 0
10	1007	41	0283	69	8321	38	4860	133	4502	159	4501	26	50
20	1047	40	0353	70	8360	39	4726	134	4342	160	4474	27	40
30	1088	41	0422	69	8398	38	4593	133	4182	160	4447	27	30
40	1128	40	0492	70	8436	38	4460	133	4023	159	4421	26	20
50	1169	41	0562	70	8475	39	4327	133	3863	160	4394	27	10
27 0	0.551209	40	0.660631	69	1.198513	38	1.814194	133	1.513704	159	0.834367	27	**33** 0
10	1250	41	0701	70	8552	39	4061	133	3544	160	4340	27	50
20	1290	40	0771	70	8590	38	3927	134	3385	159	4314	26	40
30	1330	40	0840	69	8628	38	3794	133	3225	160	4287	27	30
40	1371	41	0910	70	8667	39	3661	133	3066	159	4260	27	20
50	1411	40	0980	70	8705	38	3528	133	2906	160	4234	26	10
28 0	0.551452	41	0.661049	69	1.198744	39	1.813395	133	1.512747	159	0.834207	27	**32** 0
10	1492	40	1119	70	8782	38	3262	133	2587	160	4180	27	50
20	1533	41	1189	70	8820	38	3129	133	2428	159	4153	27	40
30	1573	40	1258	69	8859	39	2996	133	2268	160	4127	26	30
40	1614	41	1328	70	8897	38	2863	133	2109	159	4100	27	20
50	1654	40	1398	70	8936	39	2731	132	1950	159	4073	27	10
29 0	0.551694	40	0.661467	69	1.198974	38	1.812598	133	1.511790	160	0.834046	27	**31** 0
10	1735	41	1537	70	9013	39	2465	133	1631	159	4020	26	50
20	1775	40	1607	70	9051	38	2332	133	1472	159	3993	27	40
30	1816	41	1676	69	9090	39	2199	133	1313	159	3966	27	30
40	1856	40	1746	70	9128	38	2066	133	1154	159	3939	27	20
50	1897	41	1816	70	9166	38	1934	132	0994	160	3913	26	10
30 0	0.551937	40	0.661886	70	1.199205	39	1.811801	133	1.510835	159	0.833886	27	**30** 0
	cos		cotg		cosec		sec		tang		sin		

26	
1	2.6
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3	7.8
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6	15.6
7	18.2
8	20.8
9	23.4

38	
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2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

69	
1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

131	
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2	26.2
3	39.3
4	52.4
5	65.5
6	78.6
7	91.7
8	104.8
9	117.9

133	
1	13.3
2	26.6
3	39.9
4	53.2
5	66.5
6	79.8
7	93.1
8	106.4
9	119.7

157	
1	15.7
2	31.4
3	47.1
4	62.8
5	78.5
6	94.2
7	109.9
8	125.6
9	141.3

160	
1	16.0
2	32.0
3	48.0
4	64.0
5	80.0
6	96.0
7	112.0
8	128.0
9	144.0

56°

33°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.551937		0.661886		1.199205		1.811801		1.510835		0.833886		**30′** 0″
10	1977	40	1955	69	9243	38	1668	133	0676	159	3859	27	50
20	2018	41	2025	70	9282	39	1536	132	0517	159	3832	27	40
30	2058	40	2095	70	9320	38	1403	133	0358	159	3806	26	30
40	2099	41	2164	69	9359	39	1270	133	0199	159	3779	27	20
50	2139	40	2234	70	9397	38	1138	132	1.510040	159	3752	27	10
31 0	0.552180	41	0.662304	70	1.199436	39	1.811005	133	1.509881	159	0.833725	27	**29** 0
10	2220	40	2374	70	9474	38	0873	132	9722	159	3698	27	50
20	2260	40	2443	69	9513	39	0740	133	9563	159	3672	26	40
30	2301	41	2513	70	9551	38	0608	132	9404	159	3645	27	30
40	2341	40	2583	70	9590	39	0475	133	9245	159	3618	27	20
50	2382	41	2653	70	9629	39	0343	132	9086	159	3591	27	10
32 0	0.552422	40	0.662723	70	1.199667	38	1.810210	133	1.508927	159	0.833565	26	**28** 0
10	2462	40	2792	69	9706	39	1.810078	132	8768	159	3538	27	50
20	2503	41	2862	70	9744	38	1.809945	133	8609	159	3511	27	40
30	2543	40	2932	70	9783	39	9813	132	8451	158	3484	27	30
40	2584	41	3002	70	9821	38	9681	132	8292	159	3457	27	20
50	2624	40	3071	69	9860	39	9548	133	8133	159	3431	26	10
33 0	0.552664	40	0.663141	70	1.199898	38	1.809416	132	1.507974	159	0.833404	27	**27** 0
10	2705	41	3211	70	9937	39	9284	132	7816	158	3377	27	50
20	2745	40	3281	70	1.199976	39	9152	132	7657	159	3350	27	40
30	2786	41	3351	70	1.200014	38	9019	133	7498	159	3323	27	30
40	2826	40	3421	70	0053	39	8887	132	7340	158	3297	26	20
50	2866	40	3490	69	0091	38	8755	132	7181	159	3270	27	10
34 0	0.552907	41	0.663560	70	1.200130	39	1.808623	132	1.507022	159	0.833243	27	**26** 0
10	2947	40	3630	70	0169	39	8491	132	6864	158	3216	27	50
20	2988	41	3700	70	0207	38	8359	132	6705	159	3189	27	40
30	3028	40	3770	70	0246	39	8226	133	6547	158	3163	26	30
40	3068	40	3839	69	0284	38	8094	132	6388	159	3136	27	20
50	3109	41	3909	70	0323	39	7962	132	6230	158	3109	27	10
35 0	0.553149	40	0.663979	70	1.200362	39	1.807830	132	1.506071	159	0.833082	27	**25** 0
10	3190	41	4049	70	0400	38	7698	132	5913	158	3055	27	50
20	3230	40	4119	70	0439	39	7566	132	5754	159	3029	26	40
30	3270	40	4189	70	0478	39	7434	132	5596	158	3002	27	30
40	3311	41	4259	70	0516	38	7303	131	5438	158	2975	27	20
50	3351	40	4329	70	0555	39	7171	132	5279	159	2948	27	10
36 0	0.553392	41	0.664398	69	1.200594	39	1.807039	132	1.505121	158	0.832921	27	**24** 0
10	3432	40	4468	70	0632	38	6907	132	4963	158	2894	27	50
20	3472	40	4538	70	0671	39	6775	132	4804	159	2868	26	40
30	3513	41	4608	70	0710	39	6643	132	4646	158	2841	27	30
40	3553	40	4678	70	0748	38	6512	131	4488	158	2814	27	20
50	3593	40	4748	70	0787	39	6380	132	4330	158	2787	27	10
37 0	0.553634	41	0.664818	70	1.200826	39	1.806248	132	1.504172	158	0.832760	27	**23** 0
10	3674	40	4888	70	0865	39	6116	132	4013	159	2733	27	50
20	3715	41	4958	70	0903	38	5985	131	3855	158	2707	26	40
30	3755	40	5028	70	0942	39	5853	132	3697	158	2680	27	30
40	3795	40	5097	69	0981	39	5721	132	3539	158	2653	27	20
50	3836	41	5167	70	1019	38	5590	131	3381	158	2626	27	10
38 0	0.553876	40	0.665237	70	1.201058	39	1.805458	132	1.503223	158	0.832599	27	**22** 0
10	3916	40	5307	70	1097	39	5327	131	3065	158	2572	27	50
20	3957	41	5377	70	1136	39	5195	132	2907	158	2545	27	40
30	3997	40	5447	70	1174	38	5064	131	2749	158	2519	26	30
40	4037	40	5517	70	1213	39	4932	132	2591	158	2492	27	20
50	4078	41	5587	70	1252	39	4801	131	2433	158	2465	27	10
39 0	0.554118	40	0.665657	70	1.201291	39	1.804669	132	1.502275	158	0.832438	27	**21** 0
10	4159	41	5727	70	1329	38	4538	131	2117	158	2411	27	50
20	4199	40	5797	70	1368	39	4406	132	1959	158	2384	27	40
30	4239	40	5867	70	1407	39	4275	131	1802	157	2357	27	30
40	4280	41	5937	70	1446	39	4144	131	1644	158	2331	26	20
50	4320	40	6007	70	1485	39	4012	132	1486	158	2304	27	10
40 0	0.554360	40	0.666077	70	1.201523	38	1.803881	131	1.501328	158	0.832277	27	**20** 0
	cos		cotg		cosec		sec		tang		sin		

27	
1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

39	
1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

41	
1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

70	
1	7.0
2	14.0
3	21.0
4	28.0
5	35.0
6	42.0
7	49.0
8	56.0
9	63.0

132	
1	13.2
2	26.4
3	39.6
4	52.8
5	66.0
6	79.2
7	92.4
8	105.6
9	118.8

134	
1	13.4
2	26.8
3	40.2
4	53.6
5	67.0
6	80.4
7	93.8
8	107.2
9	120.6

158	
1	15.8
2	31.6
3	47.4
4	63.2
5	79.0
6	94.8
7	110.6
8	126.4
9	142.2

161	
1	16.1
2	32.2
3	48.3
4	64.4
5	80.5
6	96.6
7	112.7
8	128.8
9	144.9

56°

33°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.554360		0.666077		1.201523		1.803881		1.501328		0.832277		**20′** 0″
10	4401	41	6147	70	1562	39	3750	131	1170	158	2250	27	50
20	4441	40	6217	70	1601	39	3618	132	1013	157	2223	27	40
30	4481	40	6287	70	1640	39	3487	131	0855	158	2196	27	30
40	4522	41	6357	70	1679	39	3356	131	0697	158	2169	27	20
50	4562	40	6427	70	1717	38	3225	131	0540	157	2142	27	10
41 0	0.554602	40	0.666497	70	1.201756	39	1.803094	131	1.500382	158	0.832115	27	**19** 0
10	4643	41	6567	70	1795	39	2962	132	0224	158	2089	26	50
20	4683	40	6637	70	1834	39	2831	131	1.500067	157	2062	27	40
30	4723	40	6707	70	1873	39	2700	131	1.499909	158	2035	27	30
40	4764	41	6777	70	1912	39	2569	131	9752	157	2008	27	20
50	4804	40	6847	70	1950	38	2438	131	9594	158	1981	27	10
42 0	0.554844	40	0.666917	70	1.201989	39	1.802307	131	1.499437	157	0.831954	27	**18** 0
10	4885	41	6987	70	2028	39	2176	131	9279	158	1927	27	50
20	4925	40	7057	70	2067	39	2045	131	9122	157	1900	27	40
30	4965	40	7127	70	2106	39	1914	131	8964	158	1873	27	30
40	5006	41	7197	70	2145	39	1783	131	8807	157	1847	26	20
50	5046	40	7267	70	2184	39	1652	131	8650	157	1820	27	10
43 0	0.555086	40	0.667337	70	1.202223	39	1.801521	131	1.498492	158	0.831793	27	**17** 0
10	5127	41	7408	71	2262	39	1390	131	8335	157	1766	27	50
20	5167	40	7478	70	2300	38	1260	130	8178	157	1739	27	40
30	5207	40	7548	70	2339	39	1129	131	8020	158	1712	27	30
40	5248	41	7618	70	2378	39	0998	131	7863	157	1685	27	20
50	5288	40	7688	70	2417	39	0867	131	7706	157	1658	27	10
44 0	0.555328	40	0.667758	70	1.202456	39	1.800736	131	1.497549	157	0.831631	27	**16** 0
10	5369	41	7828	70	2495	39	0606	130	7391	158	1604	27	50
20	5409	40	7898	70	2534	39	0475	131	7234	157	1577	27	40
30	5449	40	7968	70	2573	39	0344	131	7077	157	1550	27	30
40	5490	41	8038	70	2612	39	0214	130	6920	157	1523	27	20
50	5530	40	8109	71	2651	39	1.800083	131	6763	157	1497	26	10
45 0	0.555570	40	0.668179	70	1.202690	39	1.799952	131	1.496606	157	0.831470	27	**15** 0
10	5611	41	8249	70	2729	39	9822	130	6449	157	1443	27	50
20	5651	40	8319	70	2768	39	9691	131	6292	157	1416	27	40
30	5691	40	8389	70	2807	39	9561	130	6135	157	1389	27	30
40	5731	40	8459	70	2846	39	9430	131	5978	157	1362	27	20
50	5772	41	8529	70	2885	39	9300	130	5821	157	1335	27	10
46 0	0.555812	40	0.668599	70	1.202924	39	1.799169	131	1.495664	157	0.831308	27	**14** 0
10	5852	40	8670	71	2963	39	9039	130	5507	157	1281	27	50
20	5893	41	8740	70	3002	39	8908	131	5350	157	1254	27	40
30	5933	40	8810	70	3041	39	8778	130	5193	157	1227	27	30
40	5973	40	8880	70	3080	39	8648	130	5036	157	1200	27	20
50	6014	41	8950	70	3119	39	8517	131	4879	157	1173	27	10
47 0	0.556054	40	0.669020	70	1.203158	39	1.798387	130	1.494723	156	0.831146	27	**13** 0
10	6094	40	9091	71	3197	39	8257	130	4566	157	1119	27	50
20	6134	40	9161	70	3236	39	8126	131	4409	157	1092	27	40
30	6175	41	9231	70	3275	39	7996	130	4252	157	1065	27	30
40	6215	40	9301	70	3314	39	7866	130	4096	156	1038	27	20
50	6255	40	9371	70	3353	39	7736	130	3939	157	1011	27	10
48 0	0.556296	41	0.669442	71	1.203392	39	1.797605	131	1.493782	157	0.830984	27	**12** 0
10	6336	40	9512	70	3431	39	7475	130	3626	156	0957	27	50
20	6376	40	9582	70	3470	39	7345	130	3469	157	0931	26	40
30	6416	40	9652	70	3509	39	7215	130	3312	157	0904	27	30
40	6457	41	9723	71	3548	39	7085	130	3156	156	0877	27	20
50	6497	40	9793	70	3587	39	6955	130	2999	157	0850	27	10
49 0	0.556537	40	0.669863	70	1.203626	39	1.796825	130	1.492843	156	0.830823	27	**11** 0
10	6578	41	0.669933	70	3665	39	6695	130	2686	157	0796	27	50
20	6618	40	0.670003	70	3705	40	6565	130	2530	156	0769	27	40
30	6658	40	0074	71	3744	39	6435	130	2373	157	0742	27	30
40	6698	40	0144	70	3783	39	6305	130	2217	156	0715	27	20
50	6739	41	0214	70	3822	39	6175	130	2060	157	0688	27	10
50 0	0.556779	40	0.670284	70	1.203861	39	1.796045	130	1.491904	156	0.830661	27	**10** 0
	cos		cotg		cosec		sec		tang		sin		

26									
1	2.6								
2	5.2								
3	7.8								
4	10.4								
5	13.0								
6	15.6								
7	18.2								
8	20.8								
9	23.4								

28									
1	2.8								
2	5.6								
3	8.4								
4	11.2								
5	14.0								
6	16.8								
7	19.6								
8	22.4								
9	25.2								

39									
1	3.9								
2	7.8								
3	11.7								
4	15.6								
5	19.5								
6	23.4								
7	27.3								
8	31.2								
9	35.1								

41									
1	4.1								
2	8.2								
3	12.3								
4	16.4								
5	20.5								
6	24.6								
7	28.7								
8	32.8								
9	36.9								

71									
1	7.1								
2	14.2								
3	21.3								
4	28.4								
5	35.5								
6	42.6								
7	49.7								
8	56.8								
9	63.9								

130									
1	13.0								
2	26.0								
3	39.0								
4	52.0								
5	65.0								
6	78.0								
7	91.0								
8	104.0								
9	117.0								

155									
1	15.5								
2	31.0								
3	46.5								
4	62.0								
5	77.5								
6	93.0								
7	108.5								
8	124.0								
9	139.5								

157									
1	15.7								
2	31.4								
3	47.1								
4	62.8								
5	78.5								
6	94.2								
7	109.9								
8	125.6								
9	141.3								

56°

33°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.556779		0.670284		1.203861		1.796045		1.491904		0.830661		**10′** 0″
10	6819	40	0355	71	3900	39	5915	130	1747	157	0634	27	50
20	6860	41	0425	70	3939	39	5785	130	1591	156	0607	27	40
30	6900	40	0495	70	3978	39	5655	130	1435	156	0580	27	30
40	6940	40	0566	71	4018	40	5525	130	1278	157	0553	27	20
50	6980	40	0636	70	4057	39	5396	129	1122	156	0526	27	10
51 0	0.557021	41	0.670706	70	1.204096	39	1.795266	130	1.490966	156	0.830499	27	**9** 0
10	7061	40	0776	70	4135	39	5136	130	0810	156	0472	27	50
20	7101	40	0847	71	4174	39	5006	130	0653	157	0445	27	40
30	7141	40	0917	70	4213	39	4877	129	0497	156	0418	27	30
40	7182	41	0987	70	4252	39	4747	130	0341	156	0391	27	20
50	7222	40	1058	71	4292	40	4617	130	0185	156	0364	27	10
52 0	0.557262	40	0.671128	70	1.204331	39	1.794488	129	1.490029	156	0.830337	27	**8** 0
10	7302	40	1198	70	4370	39	4358	130	1.489873	156	0310	27	50
20	7343	41	1269	71	4409	39	4228	130	9717	156	0283	27	40
30	7383	40	1339	70	4448	39	4099	129	9561	156	0256	27	30
40	7423	40	1409	70	4488	40	3969	130	9405	156	0229	27	20
50	7463	40	1480	71	4527	39	3840	129	9248	157	0202	27	10
53 0	0.557504	41	0.671550	70	1.204566	39	1.793710	130	1.489092	156	0.830174	28	**7** 0
10	7544	40	1620	70	4605	39	3581	129	8937	155	0147	27	50
20	7584	40	1691	71	4644	39	3451	130	8781	156	0120	27	40
30	7624	40	1761	70	4684	40	3322	129	8625	156	0093	27	30
40	7665	41	1831	70	4723	39	3192	130	8469	156	0066	27	20
50	7705	40	1902	71	4762	39	3063	129	8313	156	0039	27	10
54 0	0.557745	40	0.671972	70	1.204801	39	1.792934	129	1.488157	156	0.830012	27	**6** 0
10	7785	40	2042	70	4841	40	2804	130	8001	156	0.829985	27	50
20	7826	41	2113	71	4880	39	2675	129	7845	156	9958	27	40
30	7866	40	2183	70	4919	39	2546	129	7690	155	9931	27	30
40	7906	40	2254	71	4958	39	2416	130	7534	156	9904	27	20
50	7946	40	2324	70	4998	40	2287	129	7378	156	9877	27	10
55 0	0.557987	41	0.672394	70	1.205037	39	1.792158	129	1.487222	156	0.829850	27	**5** 0
10	8027	40	2465	71	5076	39	2029	129	7067	155	9823	27	50
20	8067	40	2535	70	5116	40	1900	129	6911	156	9796	27	40
30	8107	40	2606	71	5155	39	1770	130	6755	156	9769	27	30
40	8147	40	2676	70	5194	39	1641	129	6600	155	9742	27	20
50	8188	41	2746	70	5234	40	1512	129	6444	156	9715	27	10
56 0	0.558228	40	0.672817	71	1.205273	39	1.791383	129	1.486288	156	0.829688	27	**4** 0
10	8268	40	2887	70	5312	39	1254	129	6133	155	9661	27	50
20	8308	40	2958	71	5351	39	1125	129	5977	156	9634	27	40
30	8349	41	3028	70	5391	40	0996	129	5822	155	9606	28	30
40	8389	40	3099	71	5430	39	0867	129	5666	156	9579	27	20
50	8429	40	3169	70	5469	39	0738	129	5511	155	9552	27	10
57 0	0.558469	40	0.673240	71	1.205509	40	1.790609	129	1.485355	156	0.829525	27	**3** 0
10	8509	40	3310	70	5548	39	0480	129	5200	155	9498	27	50
20	8550	41	3380	70	5588	40	0351	129	5045	155	9471	27	40
30	8590	40	3451	71	5627	39	0222	129	4889	156	9444	27	30
40	8630	40	3521	70	5666	39	1.790093	129	4734	155	9417	27	20
50	8670	40	3592	71	5706	40	1.789965	128	4578	156	9390	27	10
58 0	0.558710	40	0.673662	70	1.205745	39	1.789836	129	1.484423	155	0.829363	27	**2** 0
10	8751	41	3733	71	5784	39	9707	129	4268	155	9336	27	50
20	8791	40	3803	70	5824	40	9578	129	4113	155	9309	27	40
30	8831	40	3874	71	5863	39	9449	129	3957	156	9281	28	30
40	8871	40	3944	70	5903	40	9321	128	3802	155	9254	27	20
50	8912	41	4015	71	5942	39	9192	129	3647	155	9227	27	10
59 0	0.558952	40	0.674085	70	1.205981	39	1.789063	129	1.483492	155	0.829200	27	**1** 0
10	8992	40	4156	71	6021	40	8935	128	3336	156	9173	27	50
20	9032	40	4226	70	6060	39	8806	129	3181	155	9146	27	40
30	9072	40	4297	71	6100	40	8677	129	3026	155	9119	27	30
40	9113	41	4367	70	6139	39	8549	128	2871	155	9092	27	20
50	9153	40	4438	71	6179	40	8420	129	2716	155	9065	27	10
60 0	0.559193	40	0.674509	71	1.206218	39	1.788292	128	1.482561	155	0.829038	27	**0** 0
	cos		cotg		cosec		sec		tang		sin		

27	
1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

70	
1	7.0
2	14.0
3	21.0
4	28.0
5	35.0
6	42.0
7	49.0
8	56.0
9	63.0

128	
1	12.8
2	25.6
3	38.4
4	51.2
5	64.0
6	76.8
7	89.6
8	102.4
9	115.2

132	
1	13.2
2	26.4
3	39.6
4	52.8
5	66.0
6	79.2
7	92.4
8	105.6
9	118.8

156	
1	15.6
2	31.2
3	46.8
4	62.4
5	78.0
6	93.6
7	109.2
8	124.8
9	140.4

158	
1	15.8
2	31.6
3	47.4
4	63.2
5	79.0
6	94.8
7	110.6
8	126.4
9	142.2

56°

34°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.559193		0.674509		1.206218		1.788292		1.482561		0.829038		**60′** 0″
10	9233	40	4579	70	6257	39	8163	129	2406	155	9010	28	50
20	9273	40	4650	71	6297	40	8035	128	2251	155	8983	27	40
30	9313	40	4720	70	6336	39	7906	129	2096	155	8956	27	30
40	9354	41	4791	71	6376	40	7778	128	1941	155	8929	27	20
50	9394	40	4861	70	6415	39	7649	129	1786	155	8902	27	10
1 0	0.559434	40	0.674932	71	1.206455	40	1.787521	128	1.481631	155	0.828875	27	**59** 0
10	9474	40	5002	70	6494	39	7392	129	1476	155	8848	27	50
20	9514	40	5073	71	6534	40	7264	128	1321	155	8821	27	40
30	9555	41	5144	71	6573	39	7136	128	1166	155	8793	28	30
40	9595	40	5214	70	6613	40	7007	129	1012	154	8766	27	20
50	9635	40	5285	71	6652	39	6879	128	0857	155	8739	27	10
2 0	0.559675	40	0.675355	70	1.206692	40	1.786751	128	1.480702	155	0.828712	27	**58** 0
10	9715	40	5426	71	6731	39	6623	128	0547	155	8685	27	50
20	9755	40	5497	71	6771	40	6494	129	0393	154	8658	27	40
30	9796	41	5567	70	6810	39	6366	128	0238	155	8631	27	30
40	9836	40	5638	71	6850	40	6238	128	1.480083	155	8604	27	20
50	9876	40	5708	70	6889	39	6110	128	1.479928	155	8576	28	10
3 0	0.559916	40	0.675779	71	1.206929	40	1.785982	128	1.479774	154	0.828549	27	**57** 0
10	9956	40	5850	71	6968	39	5854	128	9619	155	8522	27	50
20	0.559996	40	5920	70	7008	40	5725	129	9465	154	8495	27	40
30	0.560037	41	5991	71	7047	39	5597	128	9310	155	8468	27	30
40	0077	40	6061	70	7087	40	5469	128	9155	155	8441	27	20
50	0117	40	6132	71	7127	40	5341	128	9001	154	8414	27	10
4 0	0.560157	40	0.676203	71	1.207166	39	1.785213	128	1.478846	155	0.828386	28	**56** 0
10	0197	40	6273	70	7206	40	5085	128	8692	154	8359	27	50
20	0237	40	6344	71	7245	39	4957	128	8537	155	8332	27	40
30	0278	41	6415	71	7285	40	4829	128	8383	154	8305	27	30
40	0318	40	6485	70	7325	40	4702	127	8228	155	8278	27	20
50	0358	40	6556	71	7364	39	4574	128	8074	154	8251	27	10
5 0	0.560398	40	0.676627	71	1.207404	40	1.784446	128	1.477920	154	0.828223	28	**55** 0
10	0438	40	6697	70	7443	39	4318	128	7765	155	8196	27	50
20	0478	40	6768	71	7483	40	4190	128	7611	154	8169	27	40
30	0519	41	6839	71	7523	40	4062	128	7457	154	8142	27	30
40	0559	40	6909	70	7562	39	3934	128	7302	155	8115	27	20
50	0599	40	6980	71	7602	40	3807	127	7148	154	8088	27	10
6 0	0.560639	40	0.677051	71	1.207641	39	1.783679	128	1.476994	154	0.828060	28	**54** 0
10	0679	40	7122	71	7681	40	3551	128	6840	154	8033	27	50
20	0719	40	7192	70	7721	40	3424	127	6685	155	8006	27	40
30	0759	40	7263	71	7760	39	3296	128	6531	154	7979	27	30
40	0800	41	7334	71	7800	40	3168	128	6377	154	7952	27	20
50	0840	40	7404	70	7840	40	3041	127	6223	154	7924	28	10
7 0	0.560880	40	0.677475	71	1.207879	39	1.782913	128	1.476069	154	0.827897	27	**53** 0
10	0920	40	7546	71	7919	40	2785	128	5915	154	7870	27	50
20	0960	40	7617	71	7959	40	2658	127	5761	154	7843	27	40
30	1000	40	7687	70	7998	39	2530	128	5607	154	7816	27	30
40	1040	40	7758	71	8038	40	2403	127	5452	155	7788	28	20
50	1081	41	7829	71	8078	40	2275	128	5298	154	7761	27	10
8 0	0.561121	40	0.677900	71	1.208118	40	1.782148	127	1.475144	154	0.827734	27	**52** 0
10	1161	40	7970	70	8157	39	2020	128	4991	153	7707	27	50
20	1201	40	8041	71	8197	40	1893	127	4837	154	7680	27	40
30	1241	40	8112	71	8237	40	1766	127	4683	154	7652	28	30
40	1281	40	8183	71	8276	39	1638	128	4529	154	7625	27	20
50	1321	40	8254	71	8316	40	1511	127	4375	154	7598	27	10
9 0	0.561361	40	0.678324	70	1.208356	40	1.781384	127	1.474221	154	0.827571	27	**51** 0
10	1402	41	8395	71	8396	40	1256	128	4067	154	7544	27	50
20	1442	40	8466	71	8435	39	1129	127	3913	154	7516	28	40
30	1482	40	8537	71	8475	40	1002	127	3760	153	7489	27	30
40	1522	40	8608	71	8515	40	0875	127	3606	154	7462	27	20
50	1562	40	8678	70	8555	40	0747	128	3452	154	7435	27	10
10 0	0.561602	40	0.678749	71	1.208594	39	1.780620	127	1.473298	154	0.827407	28	**50** 0
	cos		cotg		cosec		sec		tang		sin		

27

1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

39

1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

41

1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

71

1	7.1
2	14.2
3	21.3
4	28.4
5	35.5
6	42.6
7	49.7
8	56.8
9	63.9

126

1	12.6
2	25.2
3	37.8
4	50.4
5	63.0
6	75.6
7	88.2
8	100.8
9	113.4

128

1	12.8
2	25.6
3	38.4
4	51.2
5	64.0
6	76.8
7	89.6
8	102.4
9	115.2

152

1	15.2
2	30.4
3	45.6
4	60.8
5	76.0
6	91.2
7	106.4
8	121.6
9	136.8

154

1	15.4
2	30.8
3	46.2
4	61.6
5	77.0
6	92.4
7	107.8
8	123.2
9	138.6

55°

34°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.561602		0.678749		1.208594		1.780620		1.473298		0.827407		**50′** 0″
10	1642	40	8820	71	8634	40	0493	127	3145	153	7380	27	50
20	1682	40	8891	71	8674	40	0366	127	2991	154	7353	27	40
30	1722	40	8962	71	8714	40	0239	127	2837	154	7326	27	30
40	1763	41	9032	70	8754	40	1.780112	127	2684	153	7299	27	20
50	1803	40	9103	71	8793	39	1.779984	128	2530	154	7271	28	10
11 0	0.561843	40	0.679174	71	1.208833	40	1.779857	127	1.472376	154	0.827244	27	**49** 0
10	1883	40	9245	71	8873	40	9730	127	2223	153	7217	27	50
20	1923	40	9316	71	8913	40	9603	127	2069	154	7190	27	40
30	1963	40	9387	71	8953	40	9476	127	1916	153	7162	28	30
40	2003	40	9458	71	8992	39	9349	127	1762	154	7135	27	20
50	2043	40	9528	70	9032	40	9222	127	1609	153	7108	27	10
12 0	0.562083	40	0.679599	71	1.209072	40	1.779095	127	1.471455	154	0.827081	27	**48** 0
10	2123	40	9670	71	9112	40	8969	126	1302	153	7053	28	50
20	2164	41	9741	71	9152	40	8842	127	1148	154	7026	27	40
30	2204	40	9812	71	9192	40	8715	127	0995	153	6999	27	30
40	2244	40	9883	71	9231	39	8588	127	0842	153	6972	27	20
50	2284	40	0.679954	71	9271	40	8461	127	0688	154	6944	28	10
13 0	0.562324	40	0.680025	71	1.209311	40	1.778334	127	1.470535	153	0.826917	27	**47** 0
10	2364	40	0096	71	9351	40	8208	126	0382	153	6890	27	50
20	2404	40	0166	70	9391	40	8081	127	0228	154	6863	27	40
30	2444	40	0237	71	9431	40	7954	127	1.470075	153	6835	28	30
40	2484	40	0308	71	9471	40	7827	127	1.469922	153	6808	27	20
50	2524	40	0379	71	9511	40	7701	126	9769	153	6781	27	10
14 0	0.562564	40	0.680450	71	1.209550	39	1.777574	127	1.469615	154	0.826753	28	**46** 0
10	2605	41	0521	71	9590	40	7447	127	9462	153	6726	27	50
20	2645	40	0592	71	9630	40	7321	126	9309	153	6699	27	40
30	2685	40	0663	71	9670	40	7194	127	9156	153	6672	27	30
40	2725	40	0734	71	9710	40	7068	126	9003	153	6644	28	20
50	2765	40	0805	71	9750	40	6941	127	8850	153	6617	27	10
15 0	0.562805	40	0.680876	71	1.209790	40	1.776815	126	1.468697	153	0.826590	27	**45** 0
10	2845	40	0947	71	9830	40	6688	127	8544	153	6562	28	50
20	2885	40	1018	71	9870	40	6562	126	8391	153	6535	27	40
30	2925	40	1089	71	9910	40	6435	127	8238	153	6508	27	30
40	2965	40	1160	71	9950	40	6309	126	8085	153	6481	27	20
50	3005	40	1231	71	1.209990	40	6182	127	7932	153	6453	28	10
16 0	0.563045	40	0.681302	71	1.210030	40	1.776056	126	1.467779	153	0.826426	27	**44** 0
10	3085	40	1373	71	0070	40	5930	126	7626	153	6399	27	50
20	3125	40	1444	71	0110	40	5803	127	7473	153	6371	28	40
30	3166	41	1515	71	0150	40	5677	126	7320	153	6344	27	30
40	3206	40	1586	71	0190	40	5551	126	7167	153	6317	27	20
50	3246	40	1657	71	0230	40	5424	127	7014	153	6289	28	10
17 0	0.563286	40	0.681728	71	1.210270	40	1.775298	126	1.466862	152	0.826262	27	**43** 0
10	3326	40	1799	71	0310	40	5172	126	6709	153	6235	27	50
20	3366	40	1870	71	0350	40	5046	126	6556	153	6208	27	40
30	3406	40	1941	71	0390	40	4919	127	6403	153	6180	28	30
40	3446	40	2012	71	0430	40	4793	126	6251	152	6153	27	20
50	3486	40	2083	71	0470	40	4667	126	6098	153	6126	27	10
18 0	0.563526	40	0.682154	71	1.210510	40	1.774541	126	1.465945	153	0.826098	28	**42** 0
10	3566	40	2225	71	0550	40	4415	126	5793	152	6071	27	50
20	3606	40	2296	71	0590	40	4289	126	5640	153	6044	27	40
30	3646	40	2367	71	0630	40	4163	126	5487	153	6016	28	30
40	3686	40	2438	71	0670	40	4037	126	5335	152	5989	27	20
50	3726	40	2509	71	0710	40	3911	126	5182	153	5962	27	10
19 0	0.563766	40	0.682580	71	1.210750	40	1.773785	126	1.465030	152	0.825934	28	**41** 0
10	3806	40	2651	71	0790	40	3659	126	4877	153	5907	27	50
20	3846	40	2722	71	0830	40	3533	126	4725	152	5880	27	40
30	3886	40	2793	71	0870	40	3407	126	4572	153	5852	28	30
40	3926	40	2864	71	0910	40	3281	126	4420	152	5825	27	20
50	3967	41	2935	71	0950	40	3155	126	4267	153	5798	27	10
20 0	0.564007	40	0.683007	72	1.210991	41	1.773029	126	1.464115	152	0.825770	28	**40** 0
	cos		cotg		cosec		sec		tang		sin		

28		40		70		72		127		129		153		155	
1	2.8	1	4.0	1	7.0	1	7.2	1	12.7	1	12.9	1	15.3	1	15.5
2	5.6	2	8.0	2	14.0	2	14.4	2	25.4	2	25.8	2	30.6	2	31.0
3	8.4	3	12.0	3	21.0	3	21.6	3	38.1	3	38.7	3	45.9	3	46.5
4	11.2	4	16.0	4	28.0	4	28.8	4	50.8	4	51.6	4	61.2	4	62.0
5	14.0	5	20.0	5	35.0	5	36.0	5	63.5	5	64.5	5	76.5	5	77.5
6	16.8	6	24.0	6	42.0	6	43.2	6	76.2	6	77.4	6	91.8	6	93.0
7	19.6	7	28.0	7	49.0	7	50.4	7	88.9	7	90.3	7	107.1	7	108.5
8	22.4	8	32.0	8	56.0	8	57.6	8	101.6	8	103.2	8	122.4	8	124.0
9	25.2	9	36.0	9	63.0	9	64.8	9	114.3	9	116.1	9	137.7	9	139.5

55°

34°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.564007		0.683007		1.210991		1.773029		1.464115		0.825770		**40′** 0″
10	4047	40	3078	71	1031	40	2903	126	3962	153	5743	27	50
20	4087	40	3149	71	1071	40	2777	126	3810	152	5716	27	40
30	4127	40	3220	71	1111	40	2652	125	3658	152	5688	28	30
40	4167	40	3291	71	1151	40	2526	126	3505	153	5661	27	20
50	4207	40	3362	71	1191	40	2400	126	3353	152	5634	27	10
21 0	0.564247	40	0.683433	71	1.211231	40	1.772274	126	1.463201	152	0.825606	28	**39** 0
10	4287	40	3504	71	1271	40	2149	125	3048	153	5579	27	50
20	4327	40	3576	72	1311	40	2023	126	2896	152	5551	28	40
30	4367	40	3647	71	1352	41	1897	126	2744	152	5524	27	30
40	4407	40	3718	71	1392	40	1772	125	2592	152	5497	27	20
50	4447	40	3789	71	1432	40	1646	126	2440	152	5469	28	10
22 0	0.564487	40	0.683860	71	1.211472	40	1.771520	126	1.462287	153	0.825442	27	**38** 0
10	4527	40	3931	71	1512	40	1395	125	2135	152	5415	27	50
20	4567	40	4002	71	1552	40	1269	126	1983	152	5387	28	40
30	4607	40	4074	72	1593	41	1144	125	1831	152	5360	27	30
40	4647	40	4145	71	1633	40	1018	126	1679	152	5333	27	20
50	4687	40	4216	71	1673	40	0893	125	1527	152	5305	28	10
23 0	0.564727	40	0.684287	71	1.211713	40	1.770767	126	1.461375	152	0.825278	27	**37** 0
10	4767	40	4358	71	1753	40	0642	125	1223	152	5250	28	50
20	4807	40	4429	71	1794	41	0516	126	1071	152	5223	27	40
30	4847	40	4501	72	1834	40	0391	125	0919	152	5196	27	30
40	4887	40	4572	71	1874	40	0266	125	0767	152	5168	28	20
50	4927	40	4643	71	1914	40	0140	126	0615	152	5141	27	10
24 0	0.564967	40	0.684714	71	1.211954	40	1.770015	125	1.460463	152	0.825113	28	**36** 0
10	5007	40	4786	72	1995	41	1.769890	125	0311	152	5086	27	50
20	5047	40	4857	71	2035	40	9764	126	0159	152	5059	27	40
30	5087	40	4928	71	2075	40	9639	125	1.460008	151	5031	28	30
40	5127	40	4999	71	2115	40	9514	125	1.459856	152	5004	27	20
50	5167	40	5070	71	2156	41	9389	125	9704	152	4977	27	10
25 0	0.565207	40	0.685142	72	1.212196	40	1.769263	126	1.459552	152	0.824949	28	**35** 0
10	5247	40	5213	71	2236	40	9138	125	9400	152	4922	27	50
20	5287	40	5284	71	2277	41	9013	125	9249	151	4894	28	40
30	5327	40	5355	71	2317	40	8888	125	9097	152	4867	27	30
40	5367	40	5427	72	2357	40	8763	125	8945	152	4839	28	20
50	5407	40	5498	71	2397	40	8638	125	8794	151	4812	27	10
26 0	0.565447	40	0.685569	71	1.212438	41	1.768513	125	1.458642	152	0.824785	27	**34** 0
10	5487	40	5640	71	2478	40	8387	126	8490	152	4757	28	50
20	5527	40	5712	72	2518	40	8262	125	8339	151	4730	27	40
30	5567	40	5783	71	2559	41	8137	125	8187	152	4702	28	30
40	5607	40	5854	71	2599	40	8012	125	8036	151	4675	27	20
50	5647	40	5926	72	2639	40	7887	125	7884	152	4648	27	10
27 0	0.565687	40	0.685997	71	1.212680	41	1.767763	124	1.457733	151	0.824620	28	**33** 0
10	5727	40	6068	71	2720	40	7638	125	7581	152	4593	27	50
20	5767	40	6139	71	2760	40	7513	125	7430	151	4565	28	40
30	5807	40	6211	72	2801	41	7388	125	7278	152	4538	27	30
40	5847	40	6282	71	2841	40	7263	125	7127	151	4510	28	20
50	5887	40	6353	71	2881	40	7138	125	6975	152	4483	27	10
28 0	0.565927	40	0.686425	72	1.212922	41	1.767013	125	1.456824	151	0.824456	27	**32** 0
10	5967	40	6496	71	2962	40	6889	124	6673	151	4428	28	50
20	6007	40	6567	71	3002	40	6764	125	6521	152	4401	27	40
30	6047	40	6639	72	3043	41	6639	125	6370	151	4373	28	30
40	6087	40	6710	71	3083	40	6514	125	6219	151	4346	27	20
50	6127	40	6781	71	3124	41	6390	124	6067	152	4318	28	10
29 0	0.566166	39	0.686853	72	1.213164	40	1.766265	125	1.455916	151	0.824291	27	**31** 0
10	6206	40	6924	71	3204	40	6140	125	5765	151	4263	28	50
20	6246	40	6995	71	3245	41	6016	124	5614	151	4236	27	40
30	6286	40	7067	72	3285	40	5891	125	5462	152	4209	27	30
40	6326	40	7138	71	3326	41	5766	125	5311	151	4181	28	20
50	6366	40	7210	72	3366	40	5642	124	5160	151	4154	27	10
30 0	0.566406	40	0.687281	71	1.213406	40	1.765517	125	1.455009	151	0.824126	28	**30** 0
	cos		cotg		cosec		sec		tang		sin		

27

1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

39

1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

41

1	4.1
2	8.2
3	12.3
4	16.4
5	20.5
6	24.6
7	28.7
8	32.8
9	36.9

72

1	7.2
2	14.4
3	21.6
4	28.8
5	36.0
6	43.2
7	50.4
8	57.6
9	64.8

124

1	12.4
2	24.8
3	37.2
4	49.6
5	62.0
6	74.4
7	86.8
8	99.2
9	111.6

126

1	12.6
2	25.2
3	37.8
4	50.4
5	63.0
6	75.6
7	88.2
8	100.8
9	113.4

151

1	15.1
2	30.2
3	45.3
4	60.4
5	75.5
6	90.6
7	105.7
8	120.8
9	135.9

152

1	15.2
2	30.4
3	45.6
4	60.8
5	76.0
6	91.2
7	106.4
8	121.6
9	136.8

55°

34°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.566406		0.687281		1.213406		1.765517		1.455009		0.824126		**30′** 0″
10	6446	40	7352	71	3447	41	5393	124	4858	151	4099	27	50
20	6486	40	7424	72	3487	40	5268	125	4707	151	4071	28	40
30	6526	40	7495	71	3528	41	5144	124	4556	151	4044	27	30
40	6566	40	7567	72	3568	40	5019	125	4405	151	4016	28	20
50	6606	40	7638	71	3609	41	4895	124	4254	151	3989	27	10
31 0	0.566646	40	0.687709	71	1.213649	40	1.764770	125	1.454103	151	0.823961	28	**29** 0
10	6686	40	7781	72	3690	41	4646	124	3952	151	3934	27	50
20	6726	40	7852	71	3730	40	4522	124	3801	151	3906	28	40
30	6766	40	7924	72	3771	41	4397	125	3650	151	3879	27	30
40	6806	40	7995	71	3811	40	4273	124	3499	151	3851	28	20
50	6846	40	8066	71	3851	40	4149	124	3348	151	3824	27	10
32 0	0.566886	40	0.688138	72	1.213892	41	1.764024	125	1.453197	151	0.823797	27	**28** 0
10	6926	40	8209	71	3932	40	3900	124	3046	151	3769	28	50
20	6965	39	8281	72	3973	41	3776	124	2895	151	3742	27	40
30	7005	40	8352	71	4014	41	3652	124	2745	150	3714	28	30
40	7045	40	8424	72	4054	40	3527	125	2594	151	3687	27	20
50	7085	40	8495	71	4095	41	3403	124	2443	151	3659	28	10
33 0	0.567125	40	0.688567	72	1.214135	40	1.763279	124	1.452292	151	0.823632	27	**27** 0
10	7165	40	8638	71	4176	41	3155	124	2142	150	3604	28	50
20	7205	40	8710	72	4216	40	3031	124	1991	151	3577	27	40
30	7245	40	8781	71	4257	41	2907	124	1840	151	3549	28	30
40	7285	40	8853	72	4297	40	2783	124	1690	150	3522	27	20
50	7325	40	8924	71	4338	41	2659	124	1539	151	3494	28	10
34 0	0.567365	40	0.688995	71	1.214378	40	1.762535	124	1.451388	151	0.823467	27	**26** 0
10	7405	40	9067	72	4419	41	2411	124	1238	150	3439	28	50
20	7445	40	9138	71	4459	40	2287	124	1087	151	3412	27	40
30	7485	40	9210	72	4500	41	2163	124	0937	150	3384	28	30
40	7524	39	9282	72	4541	41	2039	124	0786	151	3357	27	20
50	7564	40	9353	71	4581	40	1915	124	0636	150	3329	28	10
35 0	0.567604	40	0.689425	72	1.214622	41	1.761791	124	1.450485	151	0.823302	27	**25** 0
10	7644	40	9496	71	4662	40	1667	124	0335	150	3274	28	50
20	7684	40	9568	72	4703	41	1543	124	0184	151	3246	28	40
30	7724	40	9639	71	4744	41	1419	124	1.450034	150	3219	27	30
40	7764	40	9711	72	4784	40	1295	124	1.449883	151	3191	28	20
50	7804	40	9782	71	4825	41	1172	123	9733	150	3164	27	10
36 0	0.567844	40	0.689854	72	1.214866	41	1.761048	124	1.449583	150	0.823136	28	**24** 0
10	7884	40	9925	71	4906	40	0924	124	9432	151	3109	27	50
20	7924	40	0.689997	72	4947	41	0800	124	9282	150	3081	28	40
30	7963	39	0.690068	71	4987	40	0677	123	9132	150	3054	27	30
40	8003	40	0140	72	5028	41	0553	124	8981	151	3026	28	20
50	8043	40	0212	72	5069	41	0429	124	8831	150	2999	27	10
37 0	0.568083	40	0.690283	71	1.215109	40	1.760306	123	1.448681	150	0.822971	28	**23** 0
10	8123	40	0355	72	5150	41	0182	124	8531	150	2944	27	50
20	8163	40	0426	71	5191	41	1.760058	124	8380	151	2916	28	40
30	8203	40	0498	72	5231	40	1.759935	123	8230	150	2889	27	30
40	8243	40	0570	72	5272	41	9811	124	8080	150	2861	28	20
50	8283	40	0641	71	5313	41	9688	123	7930	150	2833	28	10
38 0	0.568323	40	0.690713	72	1.215354	41	1.759564	124	1.447780	150	0.822806	27	**22** 0
10	8362	39	0784	71	5394	40	9441	123	7630	150	2778	28	50
20	8402	40	0856	72	5435	41	9317	124	7480	150	2751	27	40
30	8442	40	0928	72	5476	41	9194	123	7330	150	2723	28	30
40	8482	40	0999	71	5516	40	9070	124	7180	150	2696	27	20
50	8522	40	1071	72	5557	41	8947	123	7030	150	2668	28	10
39 0	0.568562	40	0.691143	72	1.215598	41	1.758824	123	1.446880	150	0.822641	27	**21** 0
10	8602	40	1214	71	5639	41	8700	124	6730	150	2613	28	50
20	8642	40	1286	72	5679	40	8577	123	6580	150	2585	28	40
30	8681	39	1357	71	5720	41	8454	123	6430	150	2558	27	30
40	8721	40	1429	72	5761	41	8330	124	6280	150	2530	28	20
50	8761	40	1501	72	5802	41	8207	123	6130	150	2503	27	10
40 0	0.568801	40	0.691572	71	1.215842	40	1.758084	123	1.445980	150	0.822475	28	**20** 0
	cos		cotg		cosec		sec		tang		sin		

28		40		71		123		125		150		151		153	
1	2.8	1	4.0	1	7.1	1	12.3	1	12.5	1	15.0	1	15.1	1	15.3
2	5.6	2	8.0	2	14.2	2	24.6	2	25.0	2	30.0	2	30.2	2	30.6
3	8.4	3	12.0	3	21.3	3	36.9	3	37.5	3	45.0	3	45.3	3	45.9
4	11.2	4	16.0	4	28.4	4	49.2	4	50.0	4	60.0	4	60.4	4	61.2
5	14.0	5	20.0	5	35.5	5	61.5	5	62.5	5	75.0	5	75.5	5	76.5
6	16.8	6	24.0	6	42.6	6	73.8	6	75.0	6	90.0	6	90.6	6	91.8
7	19.6	7	28.0	7	49.7	7	86.1	7	87.5	7	105.0	7	105.7	7	107.1
8	22.4	8	32.0	8	56.8	8	98.4	8	100.0	8	120.0	8	120.8	8	122.4
9	25.2	9	36.0	9	63.9	9	110.7	9	112.5	9	135.0	9	135.9	9	137.7

55°

34°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.568801		0.691572		1.215842		1.758084		1.445980		0.822475		**20′** 0″
10	8841	40	1644	72	5883	41	7960	124	5830	150	2448	27	50
20	8881	40	1716	72	5924	41	7837	123	5680	150	2420	28	40
30	8921	40	1787	71	5965	41	7714	123	5531	149	2392	28	30
40	8961	40	1859	72	6005	40	7591	123	5381	150	2365	27	20
50	9000	39	1931	72	6046	41	7468	123	5231	150	2337	28	10
41 0	0.569040	40	0.692003	72	1.216087	41	1.757345	123	1.445081	150	0.822310	27	**19** 0
10	9080	40	2074	71	6128	41	7222	123	4932	149	2282	28	50
20	9120	40	2146	72	6169	41	7098	124	4782	150	2254	28	40
30	9160	40	2218	72	6209	40	6975	123	4632	150	2227	27	30
40	9200	40	2289	71	6250	41	6852	123	4483	149	2199	28	20
50	9240	40	2361	72	6291	41	6729	123	4333	150	2172	27	10
42 0	0.569280	40	0.692433	72	1.216332	41	1.756606	123	1.444183	150	0.822144	28	**18** 0
10	9319	39	2505	72	6373	41	6483	123	4034	149	2116	28	50
20	9359	40	2576	71	6414	41	6360	123	3884	150	2089	27	40
30	9399	40	2648	72	6454	40	6237	123	3735	149	2061	28	30
40	9439	40	2720	72	6495	41	6115	122	3585	150	2034	27	20
50	9479	40	2792	72	6536	41	5992	123	3436	149	2006	28	10
43 0	0.569519	40	0.692863	71	1.216577	41	1.755869	123	1.443286	150	0.821978	28	**17** 0
10	9559	40	2935	72	6618	41	5746	123	3137	149	1951	27	50
20	9598	39	3007	72	6659	41	5623	123	2987	150	1923	28	40
30	9638	40	3079	72	6700	41	5500	123	2838	149	1896	27	30
40	9678	40	3150	71	6740	40	5377	123	2688	150	1868	28	20
50	9718	40	3222	72	6781	41	5255	122	2539	149	1840	28	10
44 0	0.569758	40	0.693294	72	1.216822	41	1.755132	123	1.442390	149	0.821813	27	**16** 0
10	9798	40	3366	72	6863	41	5009	123	2240	150	1785	28	50
20	9837	39	3437	71	6904	41	4887	122	2091	149	1757	28	40
30	9877	40	3509	72	6945	41	4764	123	1942	149	1730	27	30
40	9917	40	3581	72	6986	41	4641	123	1793	149	1702	28	20
50	9957	40	3653	72	7027	41	4519	122	1643	150	1675	27	10
45 0	0.569997	40	0.693725	72	1.217068	41	1.754396	123	1.441494	149	0.821647	28	**15** 0
10	0.570037	40	3796	71	7109	41	4273	123	1345	149	1619	28	50
20	0076	39	3868	72	7150	41	4151	122	1196	149	1592	27	40
30	0116	40	3940	72	7191	41	4028	123	1046	150	1564	28	30
40	0156	40	4012	72	7232	41	3906	122	0897	149	1536	28	20
50	0196	40	4084	72	7272	40	3783	123	0748	149	1509	27	10
46 0	0.570236	40	0.694156	72	1.217313	41	1.753661	122	1.440599	149	0.821481	28	**14** 0
10	0276	40	4227	71	7354	41	3538	123	0450	149	1453	28	50
20	0315	39	4299	72	7395	41	3416	122	0301	149	1426	27	40
30	0355	40	4371	72	7436	41	3293	123	0152	149	1398	28	30
40	0395	40	4443	72	7477	41	3171	122	1.440003	149	1370	28	20
50	0435	40	4515	72	7518	41	3049	122	1.439854	149	1343	27	10
47 0	0.570475	40	0.694587	72	1.217559	41	1.752926	123	1.439705	149	0.821315	28	**13** 0
10	0514	39	4659	72	7600	41	2804	122	9556	149	1288	27	50
20	0554	40	4731	72	7641	41	2682	122	9407	149	1260	28	40
30	0594	40	4802	71	7682	41	2559	123	9258	149	1232	28	30
40	0634	40	4874	72	7723	41	2437	122	9109	149	1205	27	20
50	0674	40	4946	72	7764	41	2315	122	8960	149	1177	28	10
48 0	0.570714	40	0.695018	72	1.217805	41	1.752192	123	1.438811	149	0.821149	28	**12** 0
10	0753	39	5090	72	7847	42	2070	122	8663	148	1122	27	50
20	0793	40	5162	72	7888	41	1948	122	8514	149	1094	28	40
30	0833	40	5234	72	7929	41	1826	122	8365	149	1066	28	30
40	0873	40	5306	72	7970	41	1704	122	8216	149	1039	27	20
50	0913	40	5378	72	8011	41	1582	122	8067	149	1011	28	10
49 0	0.570952	39	0.695450	72	1.218052	41	1.751459	123	1.437919	148	0.820983	28	**11** 0
10	0992	40	5522	72	8093	41	1337	122	7770	149	0955	28	50
20	1032	40	5593	71	8134	41	1215	122	7621	149	0928	27	40
30	1072	40	5665	72	8175	41	1093	122	7473	148	0900	28	30
40	1112	40	5737	72	8216	41	0971	122	7324	149	0872	28	20
50	1151	39	5809	72	8257	41	0849	122	7175	149	0845	27	10
50 0	0.571191	40	0.695881	72	1.218298	41	1.750727	122	1.437027	148	0.820817	28	**10** 0
	cos		cotg		cosec		sec		tang		sin		

27		39		41		71		73		122		147		149	
1	2.7	1	3.9	1	4.1	1	7.1	1	7.3	1	12.2	1	14.7	1	14.9
2	5.4	2	7.8	2	8.2	2	14.2	2	14.6	2	24.4	2	29.4	2	29.8
3	8.1	3	11.7	3	12.3	3	21.3	3	21.9	3	36.6	3	44.1	3	44.7
4	10.8	4	15.6	4	16.4	4	28.4	4	29.2	4	48.8	4	58.8	4	59.6
5	13.5	5	19.5	5	20.5	5	35.5	5	36.5	5	61.0	5	73.5	5	74.5
6	16.2	6	23.4	6	24.6	6	42.6	6	43.8	6	73.2	6	88.2	6	89.4
7	18.9	7	27.3	7	28.7	7	49.7	7	51.1	7	85.4	7	102.9	7	104.3
8	21.6	8	31.2	8	32.8	8	56.8	8	58.4	8	97.6	8	117.6	8	119.2
9	24.3	9	35.1	9	36.9	9	63.9	9	65.7	9	109.8	9	132.3	9	134.1

55°

34°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.571191		0.695881		1.218298		1.750727		1.437027		0.820817		**10′** 0″
10	1231	40	5953	72	8339	41	0605	122	6878	149	0789	28	50
20	1271	40	6025	72	8381	42	0483	122	6730	148	0762	27	40
30	1311	40	6097	72	8422	41	0361	122	6581	149	0734	28	30
40	1350	39	6169	72	8463	41	0240	121	6433	148	0706	28	20
50	1390	40	6241	72	8504	41	1.750118	122	6284	149	0679	27	10
51 0	0.571430	40	0.696313	72	1.218545	41	1.749996	122	1.436136	148	0.820651	28	**9** 0
10	1470	40	6385	72	8586	41	9874	122	5987	149	0623	28	50
20	1510	40	6457	72	8627	41	9752	122	5839	148	0595	28	40
30	1549	39	6529	72	8668	41	9630	122	5690	149	0568	27	30
40	1589	40	6601	72	8710	42	9509	121	5542	148	0540	28	20
50	1629	40	6673	72	8751	41	9387	122	5393	149	0512	28	10
52 0	0.571669	40	0.696745	72	1.218792	41	1.749265	122	1.435245	148	0.820485	27	**8** 0
10	1708	39	6817	72	8833	41	9143	122	5097	148	0457	28	50
20	1748	40	6889	72	8874	41	9022	121	4948	149	0429	28	40
30	1788	40	6961	72	8915	41	8900	122	4800	148	0401	28	30
40	1828	40	7033	72	8957	42	8778	122	4652	148	0374	27	20
50	1868	40	7105	72	8998	41	8657	121	4504	148	0346	28	10
53 0	0.571907	39	0.697177	72	1.219039	41	1.748535	122	1.434355	149	0.820318	28	**7** 0
10	1947	40	7249	72	9080	41	8414	121	4207	148	0291	27	50
20	1987	40	7321	72	9121	41	8292	122	4059	148	0263	28	40
30	2027	40	7393	72	9163	42	8171	121	3911	148	0235	28	30
40	2066	39	7466	73	9204	41	8049	122	3763	148	0207	28	20
50	2106	40	7538	72	9245	41	7927	122	3614	149	0180	27	10
54 0	0.572146	40	0.697610	72	1.219286	41	1.747806	121	1.433466	148	0.820152	28	**6** 0
10	2186	40	7682	72	9328	42	7685	121	3318	148	0124	28	50
20	2225	39	7754	72	9369	41	7563	122	3170	148	0096	28	40
30	2265	40	7826	72	9410	41	7442	121	3022	148	0069	27	30
40	2305	40	7898	72	9451	41	7320	122	2874	148	0041	28	20
50	2345	40	7970	72	9493	42	7199	121	2726	148	0.820013	28	10
55 0	0.572384	39	0.698042	72	1.219534	41	1.747078	121	1.432578	148	0.819985	28	**5** 0
10	2424	40	8114	72	9575	41	6956	122	2430	148	9958	27	50
20	2464	40	8186	72	9616	41	6835	121	2282	148	9930	28	40
30	2504	40	8259	73	9658	42	6714	121	2134	148	9902	28	30
40	2543	39	8331	72	9699	41	6592	122	1986	148	9874	28	20
50	2583	40	8403	72	9740	41	6471	121	1839	147	9847	27	10
56 0	0.572623	40	0.698475	72	1.219782	42	1.746350	121	1.431691	148	0.819819	28	**4** 0
10	2663	40	8547	72	9823	41	6229	121	1543	148	9791	28	50
20	2702	39	8619	72	9864	41	6108	121	1395	148	9763	28	40
30	2742	40	8691	72	9906	42	5986	122	1247	148	9736	27	30
40	2782	40	8763	72	9947	41	5865	121	1099	148	9708	28	20
50	2822	40	8836	73	1.219988	41	5744	121	0952	147	9680	28	10
57 0	0.572861	39	0.698908	72	1.220030	42	1.745623	121	1.430804	148	0.819652	28	**3** 0
10	2901	40	8980	72	0071	41	5502	121	0656	148	9624	28	50
20	2941	40	9052	72	0112	41	5381	121	0508	148	9597	27	40
30	2981	40	9124	72	0154	42	5260	121	0361	147	9569	28	30
40	3020	39	9196	72	0195	41	5139	121	0213	148	9541	28	20
50	3060	40	9269	73	0236	41	5018	121	1.430065	148	9513	28	10
58 0	0.573100	40	0.699341	72	1.220278	42	1.744897	121	1.429918	147	0.819486	27	**2** 0
10	3140	40	9413	72	0319	41	4776	121	9770	148	9458	28	50
20	3179	39	9485	72	0360	41	4655	121	9623	147	9430	28	40
30	3219	40	9557	72	0402	42	4534	121	9475	148	9402	28	30
40	3259	40	9630	73	0443	41	4413	121	9328	147	9374	28	20
50	3298	39	9702	72	0485	42	4292	121	9180	148	9347	27	10
59 0	0.573338	40	0.699774	72	1.220526	41	1.744171	121	1.429033	147	0.819319	28	**1** 0
10	3378	40	9846	72	0567	41	4051	120	8885	148	9291	28	50
20	3418	40	9919	73	0609	42	3930	121	8738	147	9263	28	40
30	3457	39	0.699991	72	0650	41	3809	121	8590	148	9235	28	30
40	3497	40	0.700063	72	0692	42	3688	121	8443	147	9208	27	20
50	3537	40	0135	72	0733	41	3568	120	8295	148	9180	28	10
60 0	0.573576	39	0.700208	73	1.220775	42	1.743447	121	1.428148	147	0.819152	28	**0** 0
	cos		cotg		cosec		sec		tang		sin		

28	
1	2.8
2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

42	
1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

72	
1	7.2
2	14.4
3	21.6
4	28.8
5	36.0
6	43.2
7	50.4
8	57.6
9	64.8

120	
1	12.0
2	24.0
3	36.0
4	48.0
5	60.0
6	72.0
7	84.0
8	96.0
9	108.0

124	
1	12.4
2	24.8
3	37.2
4	49.6
5	62.0
6	74.4
7	86.8
8	99.2
9	111.6

148	
1	14.8
2	29.6
3	44.4
4	59.2
5	74.0
6	88.8
7	103.6
8	118.4
9	133.2

150	
1	15.0
2	30.0
3	45.0
4	60.0
5	75.0
6	90.0
7	105.0
8	120.0
9	135.0

55°

35°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.573576		0.700208		1.220775		1.743447		1.428148		0.819152		**60′** 0″
10	3616	40	0280	72	0816	41	3326	121	8001	147	9124	28	50
20	3656	40	0352	72	0857	41	3205	121	7853	148	9096	28	40
30	3696	40	0424	72	0899	42	3085	120	7706	147	9069	27	30
40	3735	39	0497	73	0940	41	2964	121	7559	147	9041	28	20
50	3775	40	0569	72	0982	42	2843	121	7411	148	9013	28	10
1 0	0.573815	40	0.700641	72	1.221023	41	1.742723	120	1.427264	147	0.818985	28	**59** 0
10	3854	39	0713	72	1065	42	2602	121	7117	147	8957	28	50
20	3894	40	0786	73	1106	41	2482	120	6970	147	8930	27	40
30	3934	40	0858	72	1148	42	2361	121	6823	147	8902	28	30
40	3974	40	0930	72	1189	41	2241	120	6675	148	8874	28	20
50	4013	39	1003	73	1231	42	2120	121	6528	147	8846	28	10
2 0	0.574053	40	0.701075	72	1.221272	41	1.742000	120	1.426381	147	0.818818	28	**58** 0
10	4093	40	1147	72	1314	42	1879	121	6234	147	8790	28	50
20	4132	39	1220	73	1355	41	1759	120	6087	147	8763	27	40
30	4172	40	1292	72	1397	42	1638	121	5940	147	8735	28	30
40	4212	40	1364	72	1438	41	1518	120	5793	147	8707	28	20
50	4251	39	1437	73	1480	42	1398	120	5646	147	8679	28	10
3 0	0.574291	40	0.701509	72	1.221521	41	1.741277	121	1.425499	147	0.818651	28	**57** 0
10	4331	40	1581	72	1563	42	1157	120	5352	147	8623	28	50
20	4370	39	1654	73	1605	42	1037	120	5205	147	8596	27	40
30	4410	40	1726	72	1646	41	0916	121	5058	147	8568	28	30
40	4450	40	1798	72	1688	42	0796	120	4911	147	8540	28	20
50	4489	39	1871	73	1729	41	0676	120	4764	147	8512	28	10
4 0	0.574529	40	0.701943	72	1.221771	42	1.740556	120	1.424617	147	0.818484	28	**56** 0
10	4569	40	2015	72	1812	41	0435	121	4470	147	8456	28	50
20	4609	40	2088	73	1854	42	0315	120	4323	147	8428	28	40
30	4648	39	2160	72	1896	42	0195	120	4177	146	8401	27	30
40	4688	40	2233	73	1937	41	1.740075	120	4030	147	8373	28	20
50	4728	40	2305	72	1979	42	1.739955	120	3883	147	8345	28	10
5 0	0.574767	39	0.702377	72	1.222020	41	1.739835	120	1.423736	147	0.818317	28	**55** 0
10	4807	40	2450	73	2062	42	9715	120	3589	147	8289	28	50
20	4847	40	2522	72	2104	42	9595	120	3443	146	8261	28	40
30	4886	39	2595	73	2145	41	9475	120	3296	147	8233	28	30
40	4926	40	2667	72	2187	42	9355	120	3149	147	8205	28	20
50	4966	40	2739	72	2229	42	9235	120	3003	146	8178	27	10
6 0	0.575005	39	0.702812	73	1.222270	41	1.739115	120	1.422856	147	0.818150	28	**54** 0
10	5045	40	2884	72	2312	42	8995	120	2709	147	8122	28	50
20	5085	40	2957	73	2353	41	8875	120	2563	146	8094	28	40
30	5124	39	3029	72	2395	42	8755	120	2416	147	8066	28	30
40	5164	40	3102	73	2437	42	8635	120	2270	146	8038	28	20
50	5204	40	3174	72	2478	41	8515	120	2123	147	8010	28	10
7 0	0.575243	39	0.703246	72	1.222520	42	1.738395	120	1.421977	146	0.817982	28	**53** 0
10	5283	40	3319	73	2562	42	8275	120	1830	147	7955	27	50
20	5323	40	3391	72	2604	42	8155	120	1684	146	7927	28	40
30	5362	39	3464	73	2645	41	8036	119	1537	147	7899	28	30
40	5402	40	3536	72	2687	42	7916	120	1391	146	7871	28	20
50	5441	39	3609	73	2729	42	7796	120	1244	147	7843	28	10
8 0	0.575481	40	0.703681	72	1.222770	41	1.737676	120	1.421098	146	0.817815	28	**52** 0
10	5521	40	3754	73	2812	42	7557	119	0952	146	7787	28	50
20	5560	39	3826	72	2854	42	7437	120	0805	147	7759	28	40
30	5600	40	3899	73	2896	42	7317	120	0659	146	7731	28	30
40	5640	40	3971	72	2937	41	7198	119	0513	146	7703	28	20
50	5679	39	4044	73	2979	42	7078	120	0366	147	7676	27	10
9 0	0.575719	40	0.704116	72	1.223021	42	1.736958	120	1.420220	146	0.817648	28	**51** 0
10	5759	40	4189	73	3062	41	6839	119	1.420074	146	7620	28	50
20	5798	39	4261	72	3104	42	6719	120	1.419927	147	7592	28	40
30	5838	40	4334	73	3146	42	6600	119	9781	146	7564	28	30
40	5878	40	4406	72	3188	42	6480	120	9635	146	7536	28	20
50	5917	39	4479	73	3230	42	6361	119	9489	146	7508	28	10
10 0	0.575957	40	0.704551	72	1.223271	41	1.736241	120	1.419343	146	0.817480	28	**50** 0
	cos		cotg		cosec		sec		tang		sin		

27		29		40	
1	2.7	1	2.9	1	4.0
2	5.4	2	5.8	2	8.0
3	8.1	3	8.7	3	12.0
4	10.8	4	11.6	4	16.0
5	13.5	5	14.5	5	20.0
6	16.2	6	17.4	6	24.0
7	18.9	7	20.3	7	28.0
8	21.6	8	23.2	8	32.0
9	24.3	9	26.1	9	36.0

42		72		118		121		147	
1	4.2	1	7.2	1	11.8	1	12.1	1	14.7
2	8.4	2	14.4	2	23.6	2	24.2	2	29.4
3	12.6	3	21.6	3	35.4	3	36.3	3	44.1
4	16.8	4	28.8	4	47.2	4	48.4	4	58.8
5	21.0	5	36.0	5	59.0	5	60.5	5	73.5
6	25.2	6	43.2	6	70.8	6	72.6	6	88.2
7	29.4	7	50.4	7	82.6	7	84.7	7	102.9
8	33.6	8	57.6	8	94.4	8	96.8	8	117.6
9	37.8	9	64.8	9	106.2	9	108.9	9	132.3

54°

35°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.575957		0.704551		1.223271		1.736241		1.419343		0.817480		**50′** 0″
10	5996	39	4624	73	3313	42	6122	119	9197	146	7452	28	50
20	6036	40	4697	73	3355	42	6002	120	9050	147	7424	28	40
30	6076	40	4769	72	3397	42	5883	119	8904	146	7396	28	30
40	6115	39	4842	73	3439	42	5764	119	8758	146	7368	28	20
50	6155	40	4914	72	3480	41	5644	120	8612	146	7340	28	10
11 0	0.576195	40	0.704987	73	1.223522	42	1.735525	119	1.418466	146	0.817313	27	**49** 0
10	6234	39	5059	72	3564	42	5405	120	8320	146	7285	28	50
20	6274	40	5132	73	3606	42	5286	119	8174	146	7257	28	40
30	6313	39	5205	73	3648	42	5167	119	8028	146	7229	28	30
40	6353	40	5277	72	3689	41	5048	119	7882	146	7201	28	20
50	6393	40	5350	73	3731	42	4928	120	7736	146	7173	28	10
12 0	0.576432	39	0.705422	72	1.223773	42	1.734809	119	1.417590	146	0.817145	28	**48** 0
10	6472	40	5495	73	3815	42	4690	119	7444	146	7117	28	50
20	6512	40	5568	73	3857	42	4571	119	7299	145	7089	28	40
30	6551	39	5640	72	3899	42	4451	120	7153	146	7061	28	30
40	6591	40	5713	73	3941	42	4332	119	7007	146	7033	28	20
50	6630	39	5785	72	3983	42	4213	119	6861	146	7005	28	10
13 0	0.576670	40	0.705858	73	1.224024	41	1.734094	119	1.416715	146	0.816977	28	**47** 0
10	6710	40	5931	73	4066	42	3975	119	6570	145	6949	28	50
20	6749	39	6003	72	4108	42	3856	119	6424	146	6921	28	40
30	6789	40	6076	73	4150	42	3737	119	6278	146	6893	28	30
40	6828	39	6149	73	4192	42	3618	119	6132	146	6865	28	20
50	6868	40	6221	72	4234	42	3499	119	5987	145	6837	28	10
14 0	0.576908	40	0.706294	73	1.224276	42	1.733380	119	1.415841	146	0.816809	28	**46** 0
10	6947	39	6367	73	4318	42	3261	119	5695	146	6781	28	50
20	6987	40	6439	72	4360	42	3142	119	5550	145	6753	28	40
30	7026	39	6512	73	4402	42	3023	119	5404	146	6725	28	30
40	7066	40	6585	73	4444	42	2904	119	5258	146	6698	27	20
50	7106	40	6657	72	4485	41	2785	119	5113	145	6670	28	10
15 0	0.577145	39	0.706730	73	1.224527	42	1.732666	119	1.414967	146	0.816642	28	**45** 0
10	7185	40	6803	73	4569	42	2547	119	4822	145	6614	28	50
20	7224	39	6876	73	4611	42	2429	118	4676	146	6586	28	40
30	7264	40	6948	72	4653	42	2310	119	4531	145	6558	28	30
40	7304	40	7021	73	4695	42	2191	119	4385	146	6530	28	20
50	7343	39	7094	73	4737	42	2072	119	4240	145	6502	28	10
16 0	0.577383	40	0.707166	72	1.224779	42	1.731953	119	1.414094	146	0.816474	28	**44** 0
10	7422	39	7239	73	4821	42	1835	118	3949	145	6446	28	50
20	7462	40	7312	73	4863	42	1716	119	3804	145	6418	28	40
30	7501	39	7385	73	4905	42	1597	119	3658	146	6390	28	30
40	7541	40	7457	72	4947	42	1479	118	3513	145	6362	28	20
50	7581	40	7530	73	4989	42	1360	119	3367	146	6334	28	10
17 0	0.577620	39	0.707603	73	1.225031	42	1.731241	119	1.413222	145	0.816306	28	**43** 0
10	7660	40	7676	73	5073	42	1123	118	3077	145	6278	28	50
20	7699	39	7748	72	5115	42	1004	119	2932	145	6250	28	40
30	7739	40	7821	73	5157	42	0886	118	2786	146	6222	28	30
40	7778	39	7894	73	5199	42	0767	119	2641	145	6194	28	20
50	7818	40	7967	73	5242	43	0649	118	2496	145	6166	28	10
18 0	0.577858	40	0.708039	72	1.225284	42	1.730530	119	1.412351	145	0.816138	28	**42** 0
10	7897	39	8112	73	5326	42	0412	118	2205	146	6110	28	50
20	7937	40	8185	73	5368	42	0293	119	2060	145	6082	28	40
30	7976	39	8258	73	5410	42	0175	118	1915	145	6054	28	30
40	8016	40	8331	73	5452	42	1.730056	119	1770	145	6026	28	20
50	8055	39	8403	72	5494	42	1.729938	118	1625	145	5997	29	10
19 0	0.578095	40	0.708476	73	1.225536	42	1.729819	119	1.411480	145	0.815969	28	**41** 0
10	8135	40	8549	73	5578	42	9701	118	1335	145	5941	28	50
20	8174	39	8622	73	5620	42	9583	118	1190	145	5913	28	40
30	8214	40	8695	73	5662	42	9464	119	1045	145	5885	28	30
40	8253	39	8768	73	5704	42	9346	118	0900	145	5857	28	20
50	8293	40	8840	72	5747	43	9228	118	0755	145	5829	28	10
20 0	0.578332	39	0.708913	73	1.225789	42	1.729110	118	1.410610	145	0.815801	28	**40** 0
	cos		cotg		cosec		sec		tang		sin		

28		39		41		43		73		120		145		148	
1	2.8	1	3.9	1	4.1	1	4.3	1	7.3	1	12.0	1	14.5	1	14.8
2	5.6	2	7.8	2	8.2	2	8.6	2	14.6	2	24.0	2	29.0	2	29.6
3	8.4	3	11.7	3	12.3	3	12.9	3	21.9	3	36.0	3	43.5	3	44.4
4	11.2	4	15.6	4	16.4	4	17.2	4	29.2	4	48.0	4	58.0	4	59.2
5	14.0	5	19.5	5	20.5	5	21.5	5	36.5	5	60.0	5	72.5	5	74.0
6	16.8	6	23.4	6	24.6	6	25.8	6	43.8	6	72.0	6	87.0	6	88.8
7	19.6	7	27.3	7	28.7	7	30.1	7	51.1	7	84.0	7	101.5	7	103.6
8	22.4	8	31.2	8	32.8	8	34.4	8	58.4	8	96.0	8	116.0	8	118.4
9	25.2	9	35.1	9	36.9	9	38.7	9	65.7	9	108.0	9	130.5	9	133.2

54°

35°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.578332		0.708913		1.225789		1.729110		1.410610		0.815801		**40′** 0″
10	8372	40	8986	73	5831	42	8991	119	0465	145	5773	28	50
20	8411	39	9059	73	5873	42	8873	118	0320	145	5745	28	40
30	8451	40	9132	73	5915	42	8755	118	0175	145	5717	28	30
40	8491	40	9205	73	5957	42	8637	118	1.410030	145	5689	28	20
50	8530	39	9278	73	5999	42	8519	118	1.409885	145	5661	28	10
21 0	0.578570	40	0.709350	72	1.226042	43	1.728400	119	1.409740	145	0.815633	28	**39** 0
10	8609	39	9423	73	6084	42	8282	118	9596	144	5605	28	50
20	8649	40	9496	73	6126	42	8164	118	9451	145	5577	28	40
30	8688	39	9569	73	6168	42	8046	118	9306	145	5549	28	30
40	8728	40	9642	73	6210	42	7928	118	9161	145	5521	28	20
50	8767	39	9715	73	6253	43	7810	118	9017	144	5493	28	10
22 0	0.578807	40	0.709788	73	1.226295	42	1.727692	118	1.408872	145	0.815465	28	**38** 0
10	8846	39	9861	73	6337	42	7574	118	8727	145	5437	28	50
20	8886	40	0.709934	73	6379	42	7456	118	8582	145	5409	28	40
30	8925	39	0.710007	73	6421	42	7338	118	8438	144	5380	29	30
40	8965	40	0079	72	6464	43	7220	118	8293	145	5352	28	20
50	9005	40	0152	73	6506	42	7102	118	8149	144	5324	28	10
23 0	0.579044	39	0.710225	73	1.226548	42	1.726984	118	1.408004	145	0.815296	28	**37** 0
10	9084	40	0298	73	6590	42	6866	118	7859	145	5268	28	50
20	9123	39	0371	73	6632	42	6749	117	7715	144	5240	28	40
30	9163	40	0444	73	6675	43	6631	118	7570	145	5212	28	30
40	9202	39	0517	73	6717	42	6513	118	7426	144	5184	28	20
50	9242	40	0590	73	6759	42	6395	118	7281	145	5156	28	10
24 0	0.579281	39	0.710663	73	1.226801	42	1.726277	118	1.407137	144	0.815128	28	**36** 0
10	9321	40	0736	73	6844	43	6160	117	6992	145	5100	28	50
20	9360	39	0809	73	6886	42	6042	118	6848	144	5072	28	40
30	9400	40	0882	73	6928	42	5924	118	6703	145	5044	28	30
40	9439	39	0955	73	6971	43	5807	117	6559	144	5015	29	20
50	9479	40	1028	73	7013	42	5689	118	6415	144	4987	28	10
25 0	0.579518	39	0.711101	73	1.227055	42	1.725571	118	1.406270	145	0.814959	28	**35** 0
10	9558	40	1174	73	7098	43	5454	117	6126	144	4931	28	50
20	9597	39	1247	73	7140	42	5336	118	5982	144	4903	28	40
30	9637	40	1320	73	7182	42	5218	118	5837	145	4875	28	30
40	9676	39	1393	73	7224	42	5101	117	5693	144	4847	28	20
50	9716	40	1466	73	7267	43	4983	118	5549	144	4819	28	10
26 0	0.579755	39	0.711539	73	1.227309	42	1.724866	117	1.405404	145	0.814791	28	**34** 0
10	9795	40	1612	73	7351	42	4748	118	5260	144	4763	28	50
20	9834	39	1685	73	7394	43	4631	117	5116	144	4734	29	40
30	9874	40	1758	73	7436	42	4513	118	4972	144	4706	28	30
40	9913	39	1831	73	7479	43	4396	117	4828	144	4678	28	20
50	9953	40	1904	73	7521	42	4278	118	4683	145	4650	28	10
27 0	0.579992	39	0.711977	73	1.227563	42	1.724161	117	1.404539	144	0.814622	28	**33** 0
10	0.580032	40	2050	73	7606	43	4043	118	4395	144	4594	28	50
20	0071	39	2123	73	7648	42	3926	117	4251	144	4566	28	40
30	0111	40	2196	73	7690	42	3809	117	4107	144	4538	28	30
40	0150	39	2269	73	7733	43	3691	118	3963	144	4509	29	20
50	0190	40	2343	74	7775	42	3574	117	3819	144	4481	28	10
28 0	0.580229	39	0.712416	73	1.227818	43	1.723457	117	1.403675	144	0.814453	28	**32** 0
10	0269	40	2489	73	7860	42	3340	117	3531	144	4425	28	50
20	0308	39	2562	73	7902	42	3222	118	3387	144	4397	28	40
30	0348	40	2635	73	7945	43	3105	117	3243	144	4369	28	30
40	0387	39	2708	73	7987	42	2988	117	3099	144	4341	28	20
50	0427	40	2781	73	8030	43	2871	117	2955	144	4313	28	10
29 0	0.580466	39	0.712854	73	1.228072	42	1.722753	118	1.402811	144	0.814284	29	**31** 0
10	0506	40	2927	73	8115	43	2636	117	2667	144	4256	28	50
20	0545	39	3001	74	8157	42	2519	117	2524	143	4228	28	40
30	0585	40	3074	73	8200	43	2402	117	2380	144	4200	28	30
40	0624	39	3147	73	8242	42	2285	117	2236	144	4172	28	20
50	0663	39	3220	73	8284	42	2168	117	2092	144	4144	28	10
30 0	0.580703	40	0.713293	73	1.228327	43	1.722051	117	1.401948	144	0.814116	28	**30** 0
	cos		cotg		cosec		sec		tang		sin		

28		39		42		72		74		117		142		144	
1	2.8	1	3.9	1	4.2	1	7.2	1	7.4	1	11.7	1	14.2	1	14.4
2	5.6	2	7.8	2	8.4	2	14.4	2	14.8	2	23.4	2	28.4	2	28.8
3	8.4	3	11.7	3	12.6	3	21.6	3	22.2	3	35.1	3	42.6	3	43.2
4	11.2	4	15.6	4	16.8	4	28.8	4	29.6	4	46.8	4	56.8	4	57.6
5	14.0	5	19.5	5	21.0	5	36.0	5	37.0	5	58.5	5	71.0	5	72.0
6	16.8	6	23.4	6	25.2	6	43.2	6	44.4	6	70.2	6	85.2	6	86.4
7	19.6	7	27.3	7	29.4	7	50.4	7	51.8	7	81.9	7	99.4	7	100.8
8	22.4	8	31.2	8	33.6	8	57.6	8	59.2	8	93.6	8	113.6	8	115.2
9	25.2	9	35.1	9	37.8	9	64.8	9	66.6	9	105.3	9	127.8	9	129.6

54°

35°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.580703		0.713293		1.228327		1.722051		1.401948		0.814116		**30′** 0″
10	0742	39	3366	73	8369	42	1934	117	1805	143	4087	29	50
20	0782	40	3439	73	8412	43	1817	117	1661	144	4059	28	40
30	0821	39	3513	74	8454	42	1700	117	1517	144	4031	28	30
40	0861	40	3586	73	8497	43	1583	117	1373	144	4003	28	20
50	0900	39	3659	73	8539	42	1466	117	1230	143	3975	28	10
31 0	0.580940	40	0.713732	73	1.228582	43	1.721349	117	1.401086	144	0.813947	28	**29** 0
10	0979	39	3805	73	8624	42	1232	117	0942	144	3918	29	50
20	1019	40	3878	73	8667	43	1115	117	0799	143	3890	28	40
30	1058	39	3952	74	8709	42	0998	117	0655	144	3862	28	30
40	1098	40	4025	73	8752	43	0881	117	0512	143	3834	28	20
50	1137	39	4098	73	8795	43	0765	116	0368	144	3806	28	10
32 0	0.581176	39	0.714171	73	1.228837	42	1.720648	117	1.400224	144	0.813778	28	**28** 0
10	1216	40	4244	73	8880	43	0531	117	1.400081	143	3749	29	50
20	1255	39	4318	74	8922	42	0414	117	1.399937	144	3721	28	40
30	1295	40	4391	73	8965	43	0297	117	9794	143	3693	28	30
40	1334	39	4464	73	9007	42	0181	116	9650	144	3665	28	20
50	1374	40	4537	73	9050	43	1.720064	117	9507	143	3637	28	10
33 0	0.581413	39	0.714611	74	1.229092	42	1.719947	117	1.399364	143	0.813608	29	**27** 0
10	1453	40	4684	73	9135	43	9831	116	9220	144	3580	28	50
20	1492	39	4757	73	9178	43	9714	117	9077	143	3552	28	40
30	1532	40	4830	73	9220	42	9597	117	8933	144	3524	28	30
40	1571	39	4904	74	9263	43	9481	116	8790	143	3496	28	20
50	1610	39	4977	73	9305	42	9364	117	8647	143	3467	29	10
34 0	0.581650	40	0.715050	73	1.229348	43	1.719247	117	1.398503	144	0.813439	28	**26** 0
10	1689	39	5123	73	9391	43	9131	116	8360	143	3411	28	50
20	1729	40	5197	74	9433	42	9014	117	8217	143	3383	28	40
30	1768	39	5270	73	9476	43	8898	116	8074	143	3355	28	30
40	1808	40	5343	73	9519	43	8781	117	7930	144	3326	29	20
50	1847	39	5416	73	9561	42	8665	116	7787	143	3298	28	10
35 0	0.581886	39	0.715490	74	1.229604	43	1.718548	117	1.397644	143	0.813270	28	**25** 0
10	1926	40	5563	73	9647	43	8432	116	7501	143	3242	28	50
20	1965	39	5636	73	9689	42	8316	116	7358	143	3214	28	40
30	2005	40	5710	74	9732	43	8199	117	7215	143	3185	29	30
40	2044	39	5783	73	9775	43	8083	116	7071	144	3157	28	20
50	2084	40	5856	73	9817	42	7966	117	6928	143	3129	28	10
36 0	0.582123	39	0.715930	74	1.229860	43	1.717850	116	1.396785	143	0.813101	28	**24** 0
10	2162	39	6003	73	9903	43	7734	116	6642	143	3073	28	50
20	2202	40	6076	73	9945	42	7617	117	6499	143	3044	29	40
30	2241	39	6150	74	1.229988	43	7501	116	6356	143	3016	28	30
40	2281	40	6223	73	1.230031	43	7385	116	6213	143	2988	28	20
50	2320	39	6296	73	0073	42	7269	116	6070	143	2960	28	10
37 0	0.582359	39	0.716370	74	1.230116	43	1.717152	117	1.395927	143	0.812931	29	**23** 0
10	2399	40	6443	73	0159	43	7036	116	5784	143	2903	28	50
20	2438	39	6516	73	0202	43	6920	116	5641	143	2875	28	40
30	2478	40	6590	74	0244	42	6804	116	5498	143	2847	28	30
40	2517	39	6663	73	0287	43	6688	116	5355	143	2818	29	20
50	2557	40	6737	74	0330	43	6572	116	5213	142	2790	28	10
38 0	0.582596	39	0.716810	73	1.230373	43	1.716456	116	1.395070	143	0.812762	28	**22** 0
10	2635	39	6883	73	0415	42	6339	117	4927	143	2734	28	50
20	2675	40	6957	74	0458	43	6223	116	4784	143	2705	29	40
30	2714	39	7030	73	0501	43	6107	116	4641	143	2677	28	30
40	2754	40	7104	74	0544	43	5991	116	4499	142	2649	28	20
50	2793	39	7177	73	0586	42	5875	116	4356	143	2621	28	10
39 0	0.582832	39	0.717250	73	1.230629	43	1.715759	116	1.394213	143	0.812592	29	**21** 0
10	2872	40	7324	74	0672	43	5643	116	4070	143	2564	28	50
20	2911	39	7397	73	0715	43	5527	116	3928	142	2536	28	40
30	2950	39	7471	74	0758	43	5412	115	3785	143	2508	28	30
40	2990	40	7544	73	0800	42	5296	116	3642	143	2479	29	20
50	3029	39	7618	74	0843	43	5180	116	3500	142	2451	28	10
40 0	0.583069	40	0.717691	73	1.230886	43	1.715064	116	1.393357	143	0.812423	28	**20** 0
	cos		cotg		cosec		sec		tang		sin		

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

73	
1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

115	
1	11.5
2	23.0
3	34.5
4	46.0
5	57.5
6	69.0
7	80.5
8	92.0
9	103.5

119	
1	11.9
2	23.8
3	35.7
4	47.6
5	59.5
6	71.4
7	83.3
8	95.2
9	107.1

143	
1	14.3
2	28.6
3	42.9
4	57.2
5	71.5
6	85.8
7	100.1
8	114.4
9	128.7

145	
1	14.5
2	29.0
3	43.5
4	58.0
5	72.5
6	87.0
7	101.5
8	116.0
9	130.5

54°

35°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.583069		0.717691		1.230886		1.715064		1.393357		0.812423		**20′** 0″
10	3108	39	7765	74	0929	43	4948	116	3215	142	2395	28	50
20	3147	39	7838	73	0972	43	4832	116	3072	143	2366	29	40
30	3187	40	7911	73	1015	43	4716	116	2929	143	2338	28	30
40	3226	39	7985	74	1057	42	4601	115	2787	142	2310	28	20
50	3266	40	8058	73	1100	43	4485	116	2644	143	2282	28	10
41 0	0.583305	39	0.718132	74	1.231143	43	1.714369	116	1.392502	142	0.812253	29	**19** 0
10	3344	39	8205	73	1186	43	4253	116	2359	143	2225	28	50
20	3384	40	8279	74	1229	43	4138	115	2217	142	2197	28	40
30	3423	39	8352	73	1272	43	4022	116	2074	143	2168	29	30
40	3462	39	8426	74	1315	43	3906	116	1932	142	2140	28	20
50	3502	40	8499	73	1358	43	3791	115	1790	142	2112	28	10
42 0	0.583541	39	0.718573	74	1.231400	42	1.713675	116	1.391647	143	0.812084	28	**18** 0
10	3581	40	8646	73	1443	43	3559	116	1505	142	2055	29	50
20	3620	39	8720	74	1486	43	3444	115	1363	142	2027	28	40
30	3659	39	8793	73	1529	43	3328	116	1220	143	1999	28	30
40	3699	40	8867	74	1572	43	3213	115	1078	142	1970	29	20
50	3738	39	8941	74	1615	43	3097	116	0936	142	1942	28	10
43 0	0.583777	39	0.719014	73	1.231658	43	1.712982	115	1.390793	143	0.811914	28	**17** 0
10	3817	40	9088	74	1701	43	2866	116	0651	142	1885	29	50
20	3856	39	9161	73	1744	43	2751	115	0509	142	1857	28	40
30	3895	39	9235	74	1787	43	2635	116	0367	142	1829	28	30
40	3935	40	9308	73	1830	43	2520	115	0224	143	1801	28	20
50	3974	39	9382	74	1873	43	2404	116	1.390082	142	1772	29	10
44 0	0.584014	40	0.719455	73	1.231916	43	1.712289	115	1.389940	142	0.811744	28	**16** 0
10	4053	39	9529	74	1959	43	2174	115	9798	142	1716	28	50
20	4092	39	9603	74	2002	43	2058	116	9656	142	1687	29	40
30	4132	40	9676	73	2045	43	1943	115	9514	142	1659	28	30
40	4171	39	9750	74	2088	43	1828	115	9372	142	1631	28	20
50	4210	39	9823	73	2131	43	1712	116	9230	142	1602	29	10
45 0	0.584250	40	0.719897	74	1.232174	43	1.711597	115	1.389088	142	0.811574	28	**15** 0
10	4289	39	0.719971	74	2217	43	1482	115	8946	142	1546	28	50
20	4328	39	0.720044	73	2260	43	1367	115	8804	142	1517	29	40
30	4368	40	0118	74	2303	43	1251	116	8662	142	1489	28	30
40	4407	39	0191	73	2346	43	1136	115	8520	142	1461	28	20
50	4446	39	0265	74	2389	43	1021	115	8378	142	1432	29	10
46 0	0.584486	40	0.720339	74	1.232432	43	1.710906	115	1.388236	142	0.811404	28	**14** 0
10	4525	39	0412	73	2475	43	0791	115	8094	142	1376	28	50
20	4564	39	0486	74	2518	43	0676	115	7952	142	1347	29	40
30	4604	40	0560	74	2561	43	0560	116	7810	142	1319	28	30
40	4643	39	0633	73	2604	43	0445	115	7668	142	1291	28	20
50	4682	39	0707	74	2647	43	0330	115	7526	142	1262	29	10
47 0	0.584722	40	0.720781	74	1.232690	43	1.710215	115	1.387385	141	0.811234	28	**13** 0
10	4761	39	0854	73	2733	43	1.710100	115	7243	142	1206	28	50
20	4800	39	0928	74	2776	43	1.709985	115	7101	142	1177	29	40
30	4840	40	1002	74	2819	43	9870	115	6959	142	1149	28	30
40	4879	39	1075	73	2862	43	9755	115	6818	141	1121	28	20
50	4918	39	1149	74	2905	43	9640	115	6676	142	1092	29	10
48 0	0.584958	40	0.721223	74	1.232949	44	1.709525	115	1.386534	142	0.811064	28	**12** 0
10	4997	39	1296	73	2992	43	9410	115	6393	141	1035	29	50
20	5036	39	1370	74	3035	43	9296	114	6251	142	1007	28	40
30	5076	40	1444	74	3078	43	9181	115	6109	142	0979	28	30
40	5115	39	1518	74	3121	43	9066	115	5968	141	0950	29	20
50	5154	39	1591	73	3164	43	8951	115	5826	142	0922	28	10
49 0	0.585194	40	0.721665	74	1.233207	43	1.708836	115	1.385684	142	0.810894	28	**11** 0
10	5233	39	1739	74	3251	44	8721	115	5543	141	0865	29	50
20	5272	39	1813	74	3294	43	8607	114	5401	142	0837	28	40
30	5312	40	1886	73	3337	43	8492	115	5260	141	0809	28	30
40	5351	39	1960	74	3380	43	8377	115	5118	142	0780	29	20
50	5390	39	2034	74	3423	43	8262	115	4977	141	0752	28	10
50 0	0.585429	39	0.722108	74	1.233466	43	1.708148	114	1.384835	142	0.810723	29	**10** 0
	cos		cotg		cosec		sec		tang		sin		

28

1	2.8
2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

39

1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

42

1	4.2
2	8.4
3	12.6
4	16.8
5	21.0
6	25.2
7	29.4
8	33.6
9	37.8

44

1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

74

1	7.4
2	14.8
3	22.2
4	29.6
5	37.0
6	44.4
7	51.8
8	59.2
9	66.6

113

1	11.3
2	22.6
3	33.9
4	45.2
5	56.5
6	67.8
7	79.1
8	90.4
9	101.7

116

1	11.6
2	23.2
3	34.8
4	46.4
5	58.0
6	69.6
7	81.2
8	92.8
9	104.4

142

1	14.2
2	28.4
3	42.6
4	56.8
5	71.0
6	85.2
7	99.4
8	113.6
9	127.8

54°

35°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.5585429		0.722108		1.233466		1.708148		1.384835		0.810723		**10′** 0″
10	5469	40	2181	73	3510	44	8033	115	4694	141	0695	28	50
20	5508	39	2255	74	3553	43	7918	115	4552	142	0667	28	40
30	5547	39	2329	74	3596	43	7804	114	4411	141	0638	29	30
40	5587	40	2403	74	3639	43	7689	115	4270	141	0610	28	20
50	5626	39	2476	73	3682	43	7575	114	4128	142	0581	29	10
51 0	0.5585665	39	0.722550	74	1.233726	44	1.707460	115	1.383987	141	0.810553	28	**9** 0
10	5705	40	2624	74	3769	43	7345	115	3846	141	0525	28	50
20	5744	39	2698	74	3812	43	7231	114	3704	142	0496	29	40
30	5783	39	2772	74	3855	43	7116	115	3563	141	0468	28	30
40	5822	39	2845	73	3898	43	7002	114	3422	141	0439	29	20
50	5862	40	2919	74	3942	44	6887	115	3280	142	0411	28	10
52 0	0.5585901	39	0.722993	74	1.233985	43	1.706773	114	1.383139	141	0.810383	28	**8** 0
10	5940	39	3067	74	4028	43	6659	114	2998	141	0354	29	50
20	5980	40	3141	74	4071	43	6544	115	2857	141	0326	28	40
30	6019	39	3215	74	4115	44	6430	114	2716	141	0297	29	30
40	6058	39	3288	73	4158	43	6315	115	2574	142	0269	28	20
50	6097	39	3362	74	4201	43	6201	114	2433	141	0241	28	10
53 0	0.586137	40	0.723436	74	1.234245	44	1.706087	114	1.382292	141	0.810212	29	**7** 0
10	6176	39	3510	74	4288	43	5972	115	2151	141	0184	28	50
20	6215	39	3584	74	4331	43	5858	114	2010	141	0155	29	40
30	6255	40	3658	74	4374	43	5744	114	1869	141	0127	28	30
40	6294	39	3732	74	4418	44	5629	115	1728	141	0098	29	20
50	6333	39	3805	73	4461	43	5515	114	1587	141	0070	28	10
54 0	0.586372	39	0.723879	74	1.234504	43	1.705401	114	1.381446	141	0.810042	28	**6** 0
10	6412	40	3953	74	4548	44	5287	114	1305	141	0.810013	29	50
20	6451	39	4027	74	4591	43	5173	114	1164	141	0.809985	28	40
30	6490	39	4101	74	4634	43	5058	115	1023	141	9956	29	30
40	6529	39	4175	74	4678	44	4944	114	0882	141	9928	28	20
50	6569	40	4249	74	4721	43	4830	114	0741	141	9899	29	10
55 0	0.586608	39	0.724323	74	1.234764	43	1.704716	114	1.380600	141	0.809871	28	**5** 0
10	6647	39	4397	74	4808	44	4602	114	0459	141	9843	28	50
20	6686	39	4471	74	4851	43	4488	114	0318	141	9814	29	40
30	6726	40	4544	73	4895	44	4374	114	0178	140	9786	28	30
40	6765	39	4618	74	4938	43	4260	114	1.380037	141	9757	29	20
50	6804	39	4692	74	4981	43	4146	114	1.379896	141	9729	28	10
56 0	0.586844	40	0.724766	74	1.235025	44	1.704032	114	1.379755	141	0.809700	29	**4** 0
10	6883	39	4840	74	5068	43	3918	114	9614	141	9672	28	50
20	6922	39	4914	74	5112	44	3804	114	9474	140	9643	29	40
30	6961	39	4988	74	5155	43	3690	114	9333	141	9615	28	30
40	7001	40	5062	74	5198	43	3576	114	9192	141	9587	28	20
50	7040	39	5136	74	5242	44	3462	114	9051	141	9558	29	10
57 0	0.587079	39	0.725210	74	1.235285	43	1.703348	114	1.378911	140	0.809530	28	**3** 0
10	7118	39	5284	74	5329	44	3234	114	8770	141	9501	29	50
20	7158	40	5358	74	5372	43	3120	114	8630	140	9473	28	40
30	7197	39	5432	74	5416	44	3007	113	8489	141	9444	29	30
40	7236	39	5506	74	5459	43	2893	114	8348	141	9416	28	20
50	7275	39	5580	74	5502	43	2779	114	8208	140	9387	29	10
58 0	0.587314	39	0.725654	74	1.235546	44	1.702665	114	1.378067	141	0.809359	28	**2** 0
10	7354	40	5728	74	5589	43	2552	113	7927	140	9330	29	50
20	7393	39	5802	74	5633	44	2438	114	7786	141	9302	28	40
30	7432	39	5876	74	5676	43	2324	114	7646	140	9273	29	30
40	7471	39	5950	74	5720	44	2210	114	7505	141	9245	28	20
50	7511	40	6024	74	5763	43	2097	113	7365	140	9216	29	10
59 0	0.587550	39	0.726098	74	1.235807	44	1.701983	114	1.377224	141	0.809188	28	**1** 0
10	7589	39	6172	74	5850	43	1869	114	7084	140	9159	29	50
20	7628	39	6246	74	5894	44	1756	113	6943	141	9131	28	40
30	7668	40	6320	74	5937	43	1642	114	6803	140	9102	29	30
40	7707	39	6394	74	5981	44	1529	113	6663	140	9074	28	20
50	7746	39	6468	74	6024	43	1415	114	6522	141	9045	29	10
60 0	0.587785	39	0.726543	75	1.236068	44	1.701302	113	1.376382	140	0.809017	28	**0** 0
	cos		cotg		cosec		sec		tang		sin		

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

43	
1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

73	
1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

75	
1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

115	
1	11.5
2	23.0
3	34.5
4	46.0
5	57.5
6	69.0
7	80.5
8	92.0
9	103.5

140	
1	14.0
2	28.0
3	42.0
4	56.0
5	70.0
6	84.0
7	98.0
8	112.0
9	126.0

143	
1	14.3
2	28.6
3	42.9
4	57.2
5	71.5
6	85.8
7	100.1
8	114.4
9	128.7

54°

36°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.5877785		0.726543		1.236068		1.701302		1.376382		0.809017		**60′** 0″
10	7824	39	6617	74	6112	44	1188	114	6242	140	8988	29	50
20	7864	40	6691	74	6155	43	1075	113	6101	141	8960	28	40
30	7903	39	6765	74	6199	44	0961	114	5961	140	8931	29	30
40	7942	39	6839	74	6242	43	0848	113	5821	140	8903	28	20
50	7981	39	6913	74	6286	44	0734	114	5681	140	8874	29	10
1 0	0.588021	40	0.726987	74	1.236329	43	1.700621	113	1.375540	141	0.808846	28	**59** 0
10	8060	39	7061	74	6373	44	0507	114	5400	140	8817	29	50
20	8099	39	7135	74	6416	43	0394	113	5260	140	8789	28	40
30	8138	39	7209	74	6460	44	0281	113	5120	140	8760	29	30
40	8177	39	7284	75	6504	44	0167	114	4980	140	8732	28	20
50	8217	40	7358	74	6547	43	1.700054	113	4839	141	8703	29	10
2 0	0.588256	39	0.727432	74	1.236591	44	1.699941	113	1.374699	140	0.808675	28	**58** 0
10	8295	39	7506	74	6634	43	9827	114	4559	140	8646	29	50
20	8334	39	7580	74	6678	44	9714	113	4419	140	8618	28	40
30	8373	39	7654	74	6722	44	9601	113	4279	140	8589	29	30
40	8413	40	7728	74	6765	43	9488	113	4139	140	8561	28	20
50	8452	39	7803	75	6809	44	9374	114	3999	140	8532	29	10
3 0	0.588491	39	0.727877	74	1.236853	44	1.699261	113	1.373859	140	0.808504	28	**57** 0
10	8530	39	7951	74	6896	43	9148	113	3719	140	8475	29	50
20	8569	39	8025	74	6940	44	9035	113	3579	140	8447	28	40
30	8609	40	8099	74	6984	44	8922	113	3439	140	8418	29	30
40	8648	39	8173	74	7027	43	8809	113	3299	140	8390	28	20
50	8687	39	8248	75	7071	44	8696	113	3159	140	8361	29	10
4 0	0.588726	39	0.728322	74	1.237115	44	1.698582	114	1.373019	140	0.808333	28	**56** 0
10	8765	39	8396	74	7158	43	8469	113	2880	139	8304	29	50
20	8805	40	8470	74	7202	44	8356	113	2740	140	8275	29	40
30	8844	39	8544	74	7246	44	8243	113	2600	140	8247	28	30
40	8883	39	8619	75	7289	43	8130	113	2460	140	8218	29	20
50	8922	39	8693	74	7333	44	8017	113	2320	140	8190	28	10
5 0	0.588961	39	0.728767	74	1.237377	44	1.697904	113	1.372181	139	0.808161	29	**55** 0
10	9000	39	8841	74	7421	44	7791	113	2041	140	8133	28	50
20	9040	40	8916	75	7464	43	7679	112	1901	140	8104	29	40
30	9079	39	8990	74	7508	44	7566	113	1761	140	8076	28	30
40	9118	39	9064	74	7552	44	7453	113	1622	139	8047	29	20
50	9157	39	9138	74	7596	44	7340	113	1482	140	8018	29	10
6 0	0.589196	39	0.729213	75	1.237639	43	1.697227	113	1.371342	140	0.807990	28	**54** 0
10	9236	40	9287	74	7683	44	7114	113	1203	139	7961	29	50
20	9275	39	9361	74	7727	44	7001	113	1063	140	7933	28	40
30	9314	39	9435	74	7771	44	6889	112	0923	140	7904	29	30
40	9353	39	9510	75	7814	43	6776	113	0784	139	7876	28	20
50	9392	39	9584	74	7858	44	6663	113	0644	140	7847	29	10
7 0	0.589431	39	0.729658	74	1.237902	44	1.696550	113	1.370505	139	0.807818	29	**53** 0
10	9471	40	9733	75	7946	44	6438	112	0365	140	7790	28	50
20	9510	39	9807	74	7989	43	6325	113	0226	139	7761	29	40
30	9549	39	9881	74	8033	44	6212	113	1.370086	140	7733	28	30
40	9588	39	0.729955	74	8077	44	6100	112	1.369947	139	7704	29	20
50	9627	39	0.730030	75	8121	44	5987	113	9807	140	7676	28	10
8 0	0.589666	39	0.730104	74	1.238165	44	1.695874	113	1.369668	139	0.807647	29	**52** 0
10	9705	39	0178	74	8209	44	5762	112	9528	140	7618	29	50
20	9745	40	0253	75	8252	43	5649	113	9389	139	7590	28	40
30	9784	39	0327	74	8296	44	5537	112	9250	139	7561	29	30
40	9823	39	0401	74	8340	44	5424	113	9110	140	7533	28	20
50	9862	39	0476	75	8384	44	5312	112	8971	139	7504	29	10
9 0	0.589901	39	0.730550	74	1.238428	44	1.695199	113	1.368832	139	0.807475	29	**51** 0
10	9940	39	0624	74	8472	44	5087	112	8692	140	7447	28	50
20	0.589980	40	0699	75	8516	44	4974	113	8553	139	7418	29	40
30	0.590019	39	0773	74	8559	43	4862	112	8414	139	7390	28	30
40	0058	39	0848	75	8603	44	4749	113	8274	140	7361	29	20
50	0097	39	0922	74	8647	44	4637	112	8135	139	7332	29	10
10 0	0.590136	39	0.730996	74	1.238691	44	1.694524	113	1.367996	139	0.807304	28	**50** 0
	cos		cotg		cosec		sec		tang		sin		

28

1	2.8
2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

39

1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

43

1	4.3
2	8.6
3	12.9
4	17.2
5	21.5
6	25.8
7	30.1
8	34.4
9	38.7

45

1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

75

1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

113

1	11.3
2	22.6
3	33.9
4	45.2
5	56.5
6	67.8
7	79.1
8	90.4
9	101.7

138

1	13.8
2	27.6
3	41.4
4	55.2
5	69.0
6	82.8
7	96.6
8	110.4
9	124.2

140

1	14.0
2	28.0
3	42.0
4	56.0
5	70.0
6	84.0
7	98.0
8	112.0
9	126.0

53°

36°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.590136		0.730996		1.238691		1.694524		1.367996		0.807304		**50′** 0″
10	0175	39	1071	75	8735	44	4412	112	7857	139	7275	29	50
20	0214	39	1145	74	8779	44	4300	112	7718	139	7247	28	40
30	0254	40	1220	75	8823	44	4187	113	7578	140	7218	29	30
40	0293	39	1294	74	8867	44	4075	112	7439	139	7189	29	20
50	0332	39	1368	74	8911	44	3963	112	7300	139	7161	28	10
11 0	0.590371	39	0.731443	75	1.238955	44	1.693850	113	1.367161	139	0.807132	29	**49** 0
10	0410	39	1517	74	8999	44	3738	112	7022	139	7103	29	50
20	0449	39	1592	75	9042	43	3626	112	6883	139	7075	28	40
30	0488	39	1666	74	9086	44	3514	112	6744	139	7046	29	30
40	0527	39	1740	74	9130	44	3401	113	6605	139	7018	28	20
50	0567	40	1815	75	9174	44	3289	112	6466	139	6989	29	10
12 0	0.590606	39	0.731889	74	1.239218	44	1.693177	112	1.366327	139	0.806960	29	**48** 0
10	0645	39	1964	75	9262	44	3065	112	6188	139	6932	28	50
20	0684	39	2038	74	9306	44	2953	112	6049	139	6903	29	40
30	0723	39	2113	75	9350	44	2841	112	5910	139	6874	29	30
40	0762	39	2187	74	9394	44	2729	112	5771	139	6846	28	20
50	0801	39	2262	75	9438	44	2617	112	5632	139	6817	29	10
13 0	0.590840	39	0.732336	74	1.239482	44	1.692505	112	1.365493	139	0.806788	29	**47** 0
10	0879	39	2411	75	9526	44	2392	113	5354	139	6760	28	50
20	0919	40	2485	74	9570	44	2280	112	5215	139	6731	29	40
30	0958	39	2560	75	9614	44	2168	112	5077	138	6703	28	30
40	0997	39	2634	74	9658	44	2056	112	4938	139	6674	29	20
50	1036	39	2709	75	9702	44	1945	111	4799	139	6645	29	10
14 0	0.591075	39	0.732783	74	1.239746	44	1.691833	112	1.364660	139	0.806617	28	**46** 0
10	1114	39	2858	75	9790	44	1721	112	4521	139	6588	29	50
20	1153	39	2932	74	9835	45	1609	112	4383	138	6559	29	40
30	1192	39	3007	75	9879	44	1497	112	4244	139	6531	28	30
40	1231	39	3081	74	9923	44	1385	112	4105	139	6502	29	20
50	1271	40	3156	75	1.239967	44	1273	112	3967	138	6473	29	10
15 0	0.591310	39	0.733230	74	1.240011	44	1.691161	112	1.363828	139	0.806445	28	**45** 0
10	1349	39	3305	75	0055	44	1050	111	3689	139	6416	29	50
20	1388	39	3379	74	0099	44	0938	112	3551	138	6387	29	40
30	1427	39	3454	75	0143	44	0826	112	3412	139	6359	28	30
40	1466	39	3529	75	0187	44	0714	112	3273	139	6330	29	20
50	1505	39	3603	74	0231	44	0602	112	3135	138	6301	29	10
16 0	0.591544	39	0.733678	75	1.240275	44	1.690491	111	1.362996	139	0.806273	28	**44** 0
10	1583	39	3752	74	0319	44	0379	112	2858	138	6244	29	50
20	1622	39	3827	75	0364	45	0267	112	2719	139	6215	29	40
30	1661	39	3901	74	0408	44	0156	111	2581	138	6187	28	30
40	1701	40	3976	75	0452	44	1.690044	112	2442	139	6158	29	20
50	1740	39	4051	75	0496	44	1.689932	112	2304	138	6129	29	10
17 0	0.591779	39	0.734125	74	1.240540	44	1.689821	111	1.362165	139	0.806100	29	**43** 0
10	1818	39	4200	75	0584	44	9709	112	2027	138	6072	28	50
20	1857	39	4275	75	0628	44	9598	111	1888	139	6043	29	40
30	1896	39	4349	74	0673	45	9486	112	1750	138	6014	29	30
40	1935	39	4424	75	0717	44	9375	111	1612	138	5986	28	20
50	1974	39	4498	74	0761	44	9263	112	1473	139	5957	29	10
18 0	0.592013	39	0.734573	75	1.240805	44	1.689152	111	1.361335	138	0.805928	29	**42** 0
10	2052	39	4648	75	0849	44	9040	112	1197	138	5900	28	50
20	2091	39	4722	74	0894	45	8929	111	1058	139	5871	29	40
30	2130	39	4797	75	0938	44	8817	112	0920	138	5842	29	30
40	2169	39	4872	75	0982	44	8706	111	0782	138	5813	29	20
50	2209	40	4946	74	1026	44	8594	112	0644	138	5785	28	10
19 0	0.592248	39	0.735021	75	1.241070	44	1.688483	111	1.360505	139	0.805756	29	**41** 0
10	2287	39	5096	75	1115	45	8372	111	0367	138	5727	29	50
20	2326	39	5170	74	1159	44	8260	112	0229	138	5699	28	40
30	2365	39	5245	75	1203	44	8149	111	1.360091	138	5670	29	30
40	2404	39	5320	75	1247	44	8038	111	1.359953	138	5641	29	20
50	2443	39	5394	74	1292	45	7926	112	9815	138	5612	29	10
20 0	0.592482	39	0.735469	75	1.241336	44	1.687815	111	1.359676	139	0.805584	28	**40** 0
	cos		cotg		cosec		sec		tang		sin		

29		40		44		74		111		114		139		141	
1	2.9	1	4.0	1	4.4	1	7.4	1	11.1	1	11.4	1	13.9	1	14.1
2	5.8	2	8.0	2	8.8	2	14.8	2	22.2	2	22.8	2	27.8	2	28.2
3	8.7	3	12.0	3	13.2	3	22.2	3	33.3	3	34.2	3	41.7	3	42.3
4	11.6	4	16.0	4	17.6	4	29.6	4	44.4	4	45.6	4	55.6	4	56.4
5	14.5	5	20.0	5	22.0	5	37.0	5	55.5	5	57.0	5	69.5	5	70.5
6	17.4	6	24.0	6	26.4	6	44.4	6	66.6	6	68.4	6	83.4	6	84.6
7	20.3	7	28.0	7	30.8	7	51.8	7	77.7	7	79.8	7	97.3	7	98.7
8	23.2	8	32.0	8	35.2	8	59.2	8	88.8	8	91.2	8	111.2	8	112.8
9	26.1	9	36.0	9	39.6	9	66.6	9	99.9	9	102.6	9	125.1	9	126.9

53°

36°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.592482		0.735469		1.241336		1.687815		1.359676		0.805584		**40′** 0″
10	2521	39	5544	75	1380	44	7704	111	9538	138	5555	29	50
20	2560	39	5619	75	1424	44	7593	111	9400	138	5526	29	40
30	2599	39	5693	74	1469	45	7481	112	9262	138	5498	28	30
40	2638	39	5768	75	1513	44	7370	111	9124	138	5469	29	20
50	2677	39	5843	75	1557	44	7259	111	8986	138	5440	29	10
21 0	0.592716	39	0.735917	74	1.241602	45	1.687148	111	1.358848	138	0.805411	29	**39** 0
10	2755	39	5992	75	1646	44	7037	111	8710	138	5383	28	50
20	2794	39	6067	75	1690	44	6926	111	8572	138	5354	29	40
30	2833	39	6142	75	1735	45	6815	111	8434	138	5325	29	30
40	2872	39	6216	74	1779	44	6703	112	8296	138	5296	29	20
50	2911	39	6291	75	1823	44	6592	111	8158	138	5268	28	10
22 0	0.592951	40	0.736366	75	1.241867	44	1.686481	111	1.358020	138	0.805239	29	**38** 0
10	2990	39	6441	75	1912	45	6370	111	7883	137	5210	29	50
20	3029	39	6516	75	1956	44	6259	111	7745	138	5181	29	40
30	3068	39	6590	74	2001	45	6148	111	7607	138	5153	28	30
40	3107	39	6665	75	2045	44	6037	111	7469	138	5124	29	20
50	3146	39	6740	75	2089	44	5926	111	7331	138	5095	29	10
23 0	0.593185	39	0.736815	75	1.242134	45	1.685815	111	1.357193	138	0.805066	29	**37** 0
10	3224	39	6889	74	2178	44	5705	110	7056	137	5038	28	50
20	3263	39	6964	75	2222	44	5594	111	6918	138	5009	29	40
30	3302	39	7039	75	2267	45	5483	111	6780	138	4980	29	30
40	3341	39	7114	75	2311	44	5372	111	6642	138	4951	29	20
50	3380	39	7189	75	2356	45	5261	111	6505	137	4923	28	10
24 0	0.593419	39	0.737264	75	1.242400	44	1.685150	111	1.356367	138	0.804894	29	**36** 0
10	3458	39	7338	74	2444	44	5039	111	6229	138	4865	29	50
20	3497	39	7413	75	2489	45	4929	110	6092	137	4836	29	40
30	3536	39	7488	75	2533	44	4818	111	5954	138	4807	29	30
40	3575	39	7563	75	2578	45	4707	111	5816	138	4779	28	20
50	3614	39	7638	75	2622	44	4596	111	5679	137	4750	29	10
25 0	0.593653	39	0.737713	75	1.242666	44	1.684486	110	1.355541	138	0.804721	29	**35** 0
10	3692	39	7788	75	2711	45	4375	111	5404	137	4692	29	50
20	3731	39	7862	74	2755	44	4264	111	5266	138	4664	28	40
30	3770	39	7937	75	2800	45	4154	110	5129	137	4635	29	30
40	3809	39	8012	75	2844	44	4043	111	4991	138	4606	29	20
50	3848	39	8087	75	2889	45	3932	111	4854	137	4577	29	10
26 0	0.593887	39	0.738162	75	1.242933	44	1.683822	110	1.354716	138	0.804548	29	**34** 0
10	3926	39	8237	75	2978	45	3711	111	4579	137	4520	28	50
20	3965	39	8312	75	3022	44	3601	110	4441	138	4491	29	40
30	4004	39	8387	75	3067	45	3490	111	4304	137	4462	29	30
40	4043	39	8462	75	3111	44	3380	110	4167	137	4433	29	20
50	4082	39	8537	75	3156	45	3269	111	4029	138	4404	29	10
27 0	0.594121	39	0.738611	74	1.243200	44	1.683159	110	1.353892	137	0.804376	28	**33** 0
10	4160	39	8686	75	3245	45	3048	111	3754	138	4347	29	50
20	4199	39	8761	75	3289	44	2938	110	3617	137	4318	29	40
30	4238	39	8836	75	3334	45	2827	111	3480	137	4289	29	30
40	4277	39	8911	75	3378	44	2717	110	3343	137	4260	29	20
50	4316	39	8986	75	3423	45	2606	111	3205	138	4232	28	10
28 0	0.594355	39	0.739061	75	1.243467	44	1.682496	110	1.353068	137	0.804203	29	**32** 0
10	4394	39	9136	75	3512	45	2386	110	2931	137	4174	29	50
20	4433	39	9211	75	3557	45	2275	111	2794	137	4145	29	40
30	4472	39	9286	75	3601	44	2165	110	2656	138	4116	29	30
40	4511	39	9361	75	3646	45	2055	110	2519	137	4088	28	20
50	4550	39	9436	75	3690	44	1944	111	2382	137	4059	29	10
29 0	0.594589	39	0.739511	75	1.243735	45	1.681834	110	1.352245	137	0.804030	29	**31** 0
10	4628	39	9586	75	3780	45	1724	110	2108	137	4001	29	50
20	4667	39	9661	75	3824	44	1614	110	1971	137	3972	29	40
30	4706	39	9736	75	3869	45	1504	110	1834	137	3943	29	30
40	4745	39	9811	75	3913	44	1393	111	1697	137	3915	28	20
50	4784	39	9886	75	3958	45	1283	110	1559	138	3886	29	10
30 0	0.594823	39	0.739961	75	1.244003	45	1.681173	110	1.351422	137	0.803857	29	**30** 0
	cos		cotg		cosec		sec		tang		sin		

28	
1	2.8
2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

40	
1	4.0
2	8.0
3	12.0
4	16.0
5	20.0
6	24.0
7	28.0
8	32.0
9	36.0

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

75	
1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

109	
1	10.9
2	21.8
3	32.7
4	43.6
5	54.5
6	65.4
7	76.3
8	87.2
9	98.1

112	
1	11.2
2	22.4
3	33.6
4	44.8
5	56.0
6	67.2
7	78.4
8	89.6
9	100.8

137	
1	13.7
2	27.4
3	41.1
4	54.8
5	68.5
6	82.2
7	95.9
8	109.6
9	123.3

53°

36°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.594823		0.739961		1.244003		1.681173		1.351422		0.803857		**30′** 0″
10	4862	39	0.740036	75	4047	44	1063	110	1285	137	3828	29	50
20	4901	39	0111	75	4092	45	0953	110	1148	137	3799	29	40
30	4940	39	0186	75	4136	44	0843	110	1011	137	3770	29	30
40	4979	39	0261	75	4181	45	0733	110	0874	137	3741	29	20
50	5018	39	0336	75	4226	45	0622	111	0738	136	3713	28	10
31 0	0.595057	39	0.740411	75	1.244270	44	1.680512	110	1.350601	137	0.803684	29	**29** 0
10	5096	39	0486	75	4315	45	0402	110	0464	137	3655	29	50
20	5135	39	0561	75	4360	45	0292	110	0327	137	3626	29	40
30	5173	38	0637	76	4404	44	0182	110	0190	137	3597	29	30
40	5212	39	0712	75	4449	45	1.680072	110	1.350053	137	3568	29	20
50	5251	39	0787	75	4494	45	1.679962	110	1.349916	137	3540	28	10
32 0	0.595290	39	0.740862	75	1.244539	45	1.679853	109	1.349779	137	0.803511	29	**28** 0
10	5329	39	0937	75	4583	44	9743	110	9643	136	3482	29	50
20	5368	39	1012	75	4628	45	9633	110	9506	137	3453	29	40
30	5407	39	1087	75	4673	45	9523	110	9369	137	3424	29	30
40	5446	39	1162	75	4717	44	9413	110	9232	137	3395	29	20
50	5485	39	1237	75	4762	45	9303	110	9096	136	3366	29	10
33 0	0.595524	39	0.741312	75	1.244807	45	1.679193	110	1.348959	137	0.803337	29	**27** 0
10	5563	39	1388	76	4852	45	9083	110	8822	137	3309	28	50
20	5602	39	1463	75	4896	44	8974	109	8686	136	3280	29	40
30	5641	39	1538	75	4941	45	8864	110	8549	137	3251	29	30
40	5680	39	1613	75	4986	45	8754	110	8412	137	3222	29	20
50	5719	39	1688	75	5031	45	8644	110	8276	136	3193	29	10
34 0	0.595758	39	0.741763	75	1.245075	44	1.678535	109	1.348139	137	0.803164	29	**26** 0
10	5797	39	1838	75	5120	45	8425	110	8002	137	3135	29	50
20	5836	39	1914	76	5165	45	8315	110	7866	136	3106	29	40
30	5875	39	1989	75	5210	45	8206	109	7729	137	3078	28	30
40	5913	38	2064	75	5255	45	8096	110	7593	136	3049	29	20
50	5952	39	2139	75	5299	44	7986	110	7456	137	3020	29	10
35 0	0.595991	39	0.742214	75	1.245344	45	1.677877	109	1.347320	136	0.802991	29	**25** 0
10	6030	39	2290	76	5389	45	7767	110	7183	137	2962	29	50
20	6069	39	2365	75	5434	45	7658	109	7047	136	2933	29	40
30	6108	39	2440	75	5479	45	7548	110	6910	137	2904	29	30
40	6147	39	2515	75	5523	44	7439	109	6774	136	2875	29	20
50	6186	39	2590	75	5568	45	7329	110	6638	136	2846	29	10
36 0	0.596225	39	0.742666	76	1.245613	45	1.677220	109	1.346501	137	0.802817	29	**24** 0
10	6264	39	2741	75	5658	45	7110	110	6365	136	2789	28	50
20	6303	39	2816	75	5703	45	7001	109	6228	137	2760	29	40
30	6342	39	2891	75	5748	45	6891	110	6092	136	2731	29	30
40	6381	39	2966	75	5793	45	6782	109	5956	136	2702	29	20
50	6419	38	3042	76	5837	44	6672	110	5819	137	2673	29	10
37 0	0.596458	39	0.743117	75	1.245882	45	1.676563	109	1.345683	136	0.802644	29	**23** 0
10	6497	39	3192	75	5927	45	6454	109	5547	136	2615	29	50
20	6536	39	3267	75	5972	45	6344	110	5411	136	2586	29	40
30	6575	39	3343	76	6017	45	6235	109	5274	137	2557	29	30
40	6614	39	3418	75	6062	45	6126	109	5138	136	2528	29	20
50	6653	39	3493	75	6107	45	6016	110	5002	136	2499	29	10
38 0	0.596692	39	0.743569	76	1.246152	45	1.675907	109	1.344866	136	0.802470	29	**22** 0
10	6731	39	3644	75	6197	45	5798	109	4730	136	2442	28	50
20	6770	39	3719	75	6242	45	5688	110	4594	136	2413	29	40
30	6809	39	3794	75	6287	45	5579	109	4457	137	2384	29	30
40	6847	38	3870	76	6332	45	5470	109	4321	136	2355	29	20
50	6886	39	3945	75	6376	44	5361	109	4185	136	2326	29	10
39 0	0.596925	39	0.744020	75	1.246421	45	1.675252	109	1.344049	136	0.802297	29	**21** 0
10	6964	39	4096	76	6466	45	5143	109	3913	136	2268	29	50
20	7003	39	4171	75	6511	45	5033	110	3777	136	2239	29	40
30	7042	39	4246	75	6556	45	4924	109	3641	136	2210	29	30
40	7081	39	4322	76	6601	45	4815	109	3505	136	2181	29	20
50	7120	39	4397	75	6646	45	4706	109	3369	136	2152	29	10
40 0	0.597159	39	0.744472	75	1.246691	45	1.674597	109	1.343233	136	0.802123	29	**20** 0
	cos		cotg		cosec		sec		tang		sin		

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

39	
1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

44	
1	4.4
2	8.8
3	13.2
4	17.6
5	22.0
6	26.4
7	30.8
8	35.2
9	39.6

74	
1	7.4
2	14.8
3	22.2
4	29.6
5	37.0
6	44.4
7	51.8
8	59.2
9	66.6

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

110	
1	11.0
2	22.0
3	33.0
4	44.0
5	55.0
6	66.0
7	77.0
8	88.0
9	99.0

136	
1	13.6
2	27.2
3	40.8
4	54.4
5	68.0
6	81.6
7	95.2
8	108.8
9	122.4

138	
1	13.8
2	27.6
3	41.4
4	55.2
5	69.0
6	82.8
7	96.6
8	110.4
9	124.2

53°

36°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.597159		0.744472		1.246691		1.674597		1.343233		0.802123		**20′** 0″
10	7197	38	4548	76	6736	45	4488	109	3097	136	2094	29	50
20	7236	39	4623	75	6781	45	4379	109	2961	136	2065	29	40
30	7275	39	4698	75	6826	45	4270	109	2825	136	2036	29	30
40	7314	39	4774	76	6871	45	4161	109	2689	136	2007	29	20
50	7353	39	4849	75	6916	45	4052	109	2554	135	1978	29	10
41 0	0.597392	39	0.744925	76	1.246961	45	1.673943	109	1.342418	136	0.801949	29	**19** 0
10	7431	39	5000	75	7006	45	3834	109	2282	136	1920	29	50
20	7470	39	5075	75	7051	45	3725	109	2146	136	1892	28	40
30	7509	39	5151	76	7097	46	3616	109	2010	136	1863	29	30
40	7547	38	5226	75	7142	45	3507	109	1874	136	1834	29	20
50	7586	39	5302	76	7187	45	3399	108	1739	135	1805	29	10
42 0	0.597625	39	0.745377	75	1.247232	45	1.673290	109	1.341603	136	0.801776	29	**18** 0
10	7664	39	5452	75	7277	45	3181	109	1467	136	1747	29	50
20	7703	39	5528	76	7322	45	3072	109	1331	136	1718	29	40
30	7742	39	5603	75	7367	45	2963	109	1196	135	1689	29	30
40	7781	39	5679	76	7412	45	2854	109	1060	136	1660	29	20
50	7819	38	5754	75	7457	45	2746	108	0924	136	1631	29	10
43 0	0.597858	39	0.745830	76	1.247502	45	1.672637	109	1.340789	135	0.801602	29	**17** 0
10	7897	39	5905	75	7547	45	2528	109	0653	136	1573	29	50
20	7936	39	5981	76	7592	45	2420	108	0518	135	1544	29	40
30	7975	39	6056	75	7638	46	2311	109	0382	136	1515	29	30
40	8014	39	6131	75	7683	45	2202	109	0246	136	1486	29	20
50	8053	39	6207	76	7728	45	2094	108	1.340111	135	1457	29	10
44 0	0.598091	38	0.746282	75	1.247773	45	1.671985	109	1.339975	136	0.801428	29	**16** 0
10	8130	39	6358	76	7818	45	1876	109	9840	135	1399	29	50
20	8169	39	6433	75	7863	45	1768	108	9704	136	1370	29	40
30	8208	39	6509	76	7908	45	1659	109	9569	135	1341	29	30
40	8247	39	6584	75	7954	46	1551	108	9433	136	1312	29	20
50	8286	39	6660	76	7999	45	1442	109	9298	135	1283	29	10
45 0	0.598325	39	0.746735	75	1.248044	45	1.671334	108	1.339162	136	0.801254	29	**15** 0
10	8363	38	6811	76	8089	45	1225	109	9027	135	1225	29	50
20	8402	39	6886	75	8134	45	1117	108	8892	135	1196	29	40
30	8441	39	6962	76	8180	46	1008	109	8756	136	1167	29	30
40	8480	39	7038	76	8225	45	0900	108	8621	135	1138	29	20
50	8519	39	7113	75	8270	45	0791	109	8485	136	1109	29	10
46 0	0.598558	39	0.747189	76	1.248315	45	1.670683	108	1.338350	135	0.801080	29	**14** 0
10	8596	38	7264	75	8360	45	0574	109	8215	135	1051	29	50
20	8635	39	7340	76	8406	46	0466	108	8080	135	1022	29	40
30	8674	39	7415	75	8451	45	0358	108	7944	136	0993	29	30
40	8713	39	7491	76	8496	45	0249	109	7809	135	0964	29	20
50	8752	39	7566	75	8541	45	0141	108	7674	135	0935	29	10
47 0	0.598791	39	0.747642	76	1.248587	46	1.670033	108	1.337539	135	0.800906	29	**13** 0
10	8829	38	7718	76	8632	45	1.669924	109	7403	136	0877	29	50
20	8868	39	7793	75	8677	45	9816	108	7268	135	0848	29	40
30	8907	39	7869	76	8722	45	9708	108	7133	135	0818	30	30
40	8946	39	7944	75	8768	46	9600	108	6998	135	0789	29	20
50	8985	39	8020	76	8813	45	9492	108	6863	135	0760	29	10
48 0	0.599024	39	0.748096	76	1.248858	45	1.669383	109	1.336728	135	0.800731	29	**12** 0
10	9062	38	8171	75	8904	46	9275	108	6592	136	0702	29	50
20	9101	39	8247	76	8949	45	9167	108	6457	135	0673	29	40
30	9140	39	8322	75	8994	45	9059	108	6322	135	0644	29	30
40	9179	39	8398	76	9040	46	8951	108	6187	135	0615	29	20
50	9218	39	8474	76	9085	45	8843	108	6052	135	0586	29	10
49 0	0.599256	38	0.748549	75	1.249130	45	1.668735	108	1.335917	135	0.800557	29	**11** 0
10	9295	39	8625	76	9175	45	8626	109	5782	135	0528	29	50
20	9334	39	8701	76	9221	46	8518	108	5647	135	0499	29	40
30	9373	39	8776	75	9266	45	8410	108	5512	135	0470	29	30
40	9412	39	8852	76	9312	46	8302	108	5377	135	0441	29	20
50	9451	39	8928	76	9357	45	8194	108	5242	135	0412	29	10
50 0	0.599489	38	0.749003	75	1.249402	45	1.668086	108	1.335108	134	0.800383	29	**10** 0
	cos		cotg		cosec		sec		tang		sin		

28	
1	2.8
2	5.6
3	8.4
4	11.2
5	14.0
6	16.8
7	19.6
8	22.4
9	25.2

30	
1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

39	
1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

46	
1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

108	
1	10.8
2	21.6
3	32.4
4	43.2
5	54.0
6	64.8
7	75.6
8	86.4
9	97.2

133	
1	13.3
2	26.6
3	39.9
4	53.2
5	66.5
6	79.8
7	93.1
8	106.4
9	119.7

135	
1	13.5
2	27.0
3	40.5
4	54.0
5	67.5
6	81.0
7	94.5
8	108.0
9	121.5

53°

36°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.599489		0.749003		1.249402		1.668086		1.335108		0.800383		**10′** 0″
10	9528	39	9079	76	9448	46	7978	108	4973	135	0354	29	50
20	9567	39	9155	76	9493	45	7870	108	4838	135	0325	29	40
30	9606	39	9230	75	9538	45	7763	107	4703	135	0296	29	30
40	9645	39	9306	76	9584	46	7655	108	4568	135	0266	30	20
50	9683	38	9382	76	9629	45	7547	108	4433	135	0237	29	10
51 0	0.599722	39	0.749458	76	1.249675	46	1.667439	108	1.334298	135	0.800208	29	**9** 0
10	9761	39	9533	75	9720	45	7331	108	4164	134	0179	29	50
20	9800	39	9609	76	9765	45	7223	108	4029	135	0150	29	40
30	9839	39	9685	76	9811	46	7115	108	3894	135	0121	29	30
40	9877	38	9760	75	9856	45	7008	107	3759	135	0092	29	20
50	9916	39	9836	76	9902	46	6900	108	3625	134	0063	29	10
52 0	0.599955	39	0.749912	76	1.249947	45	1.666792	108	1.333490	135	0.800034	29	**8** 0
10	0.599994	39	0.749988	76	1.249993	46	6684	108	3355	135	0.800005	29	50
20	0.600032	38	0.750063	75	1.250038	45	6577	107	3221	134	0.799976	29	40
30	0071	39	0139	76	0083	45	6469	108	3086	135	9947	29	30
40	0110	39	0215	76	0129	46	6361	108	2951	135	9917	30	20
50	0149	39	0291	76	0174	45	6253	108	2817	134	9888	29	10
53 0	0.600188	39	0.750366	75	1.250220	46	1.666146	107	1.332682	135	0.799859	29	**7** 0
10	0226	38	0442	76	0265	45	6038	108	2548	134	9830	29	50
20	0265	39	0518	76	0311	46	5931	107	2413	135	9801	29	40
30	0304	39	0594	76	0356	45	5823	108	2278	135	9772	29	30
40	0343	39	0670	76	0402	46	5715	108	2144	134	9743	29	20
50	0381	38	0745	75	0447	45	5608	107	2009	135	9714	29	10
54 0	0.600420	39	0.750821	76	1.250493	46	1.665500	108	1.331875	134	0.799685	29	**6** 0
10	0459	39	0897	76	0538	45	5393	107	1740	135	9656	29	50
20	0498	39	0973	76	0584	46	5285	108	1606	134	9626	30	40
30	0537	39	1049	76	0630	46	5178	107	1472	134	9597	29	30
40	0575	38	1125	76	0675	45	5070	108	1337	135	9568	29	20
50	0614	39	1200	75	0721	46	4963	107	1203	134	9539	29	10
55 0	0.600653	39	0.751276	76	1.250766	45	1.664855	108	1.331068	135	0.799510	29	**5** 0
10	0692	39	1352	76	0812	46	4748	107	0934	134	9481	29	50
20	0730	38	1428	76	0857	45	4640	108	0800	134	9452	29	40
30	0769	39	1504	76	0903	46	4533	107	0665	135	9423	29	30
40	0808	39	1580	76	0948	45	4426	107	0531	134	9393	30	20
50	0847	39	1656	76	0994	46	4318	108	0397	134	9364	29	10
56 0	0.600885	38	0.751731	75	1.251040	46	1.664211	107	1.330262	135	0.799335	29	**4** 0
10	0924	39	1807	76	1085	45	4104	107	1.330128	134	9306	29	50
20	0963	39	1883	76	1131	46	3996	108	1.329994	134	9277	29	40
30	1002	39	1959	76	1176	45	3889	107	9860	134	9248	29	30
40	1040	38	2035	76	1222	46	3782	107	9725	135	9219	29	20
50	1079	39	2111	76	1268	46	3675	107	9591	134	9190	29	10
57 0	0.601118	39	0.752187	76	1.251313	45	1.663567	108	1.329457	134	0.799160	30	**3** 0
10	1157	39	2263	76	1359	46	3460	107	9323	134	9131	29	50
20	1195	38	2339	76	1405	46	3353	107	9189	134	9102	29	40
30	1234	39	2415	76	1450	45	3246	107	9055	134	9073	29	30
40	1273	39	2490	75	1496	46	3139	107	8921	134	9044	29	20
50	1312	39	2566	76	1542	46	3031	108	8786	135	9015	29	10
58 0	0.601350	38	0.752642	76	1.251587	45	1.662924	107	1.328652	134	0.798985	30	**2** 0
10	1389	39	2718	76	1633	46	2817	107	8518	134	8956	29	50
20	1428	39	2794	76	1679	46	2710	107	8384	134	8927	29	40
30	1466	38	2870	76	1724	45	2603	107	8250	134	8898	29	30
40	1505	39	2946	76	1770	46	2496	107	8116	134	8869	29	20
50	1544	39	3022	76	1816	46	2389	107	7982	134	8840	29	10
59 0	0.601583	39	0.753098	76	1.251861	45	1.662282	107	1.327848	134	0.798811	29	**1** 0
10	1621	38	3174	76	1907	46	2175	107	7714	134	8781	30	50
20	1660	39	3250	76	1953	46	2068	107	7580	134	8752	29	40
30	1699	39	3326	76	1998	45	1961	107	7446	134	8723	29	30
40	1738	39	3402	76	2044	46	1854	107	7313	133	8694	29	20
50	1776	38	3478	76	2090	46	1747	107	7179	134	8665	29	10
60 0	0.601815	39	0.753554	76	1.252136	46	1.661640	107	1.327045	134	0.798636	29	**0** 0
	cos		cotg		cosec		sec		tang		sin		

29	
1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

45	
1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

75	
1	7.5
2	15.0
3	22.5
4	30.0
5	37.5
6	45.0
7	52.5
8	60.0
9	67.5

107	
1	10.7
2	21.4
3	32.1
4	42.8
5	53.5
6	64.2
7	74.9
8	85.6
9	96.3

109	
1	10.9
2	21.8
3	32.7
4	43.6
5	54.5
6	65.4
7	76.3
8	87.2
9	98.1

134	
1	13.4
2	26.8
3	40.2
4	53.6
5	67.0
6	80.4
7	93.8
8	107.2
9	120.6

136	
1	13.6
2	27.2
3	40.8
4	54.4
5	68.0
6	81.6
7	95.2
8	108.8
9	122.4

53°

37°

0′ 0″	sin		tang		sec		cosec		cotg		cos		60′ 0″
	0.601815		0.753554		1.252136		1.661640		1.327045		0.798636		
10	1854	39	3630	76	2181	45	1533	107	6911	134	8606	30	50
20	1892	38	3706	76	2227	46	1426	107	6777	134	8577	29	40
30	1931	39	3782	76	2273	46	1320	106	6643	134	8548	29	30
40	1970	39	3858	76	2319	46	1213	107	6510	133	8519	29	20
50	2009	39	3934	76	2364	45	1106	107	6376	134	8490	29	10
1 0	0.602047	38	0.754010	76	1.252410	46	1.660999	107	1.326242	134	0.798460	30	59 0
10	2086	39	4086	76	2456	46	0892	107	6108	134	8431	29	50
20	2125	39	4162	76	2502	46	0785	107	5974	134	8402	29	40
30	2163	38	4238	76	2548	46	0679	106	5841	133	8373	29	30
40	2202	39	4314	76	2593	45	0572	107	5707	134	8344	29	20
50	2241	39	4391	77	2639	46	0465	107	5573	134	8314	30	10
2 0	0.602280	39	0.754467	76	1.252685	46	1.660359	106	1.325440	133	0.798285	29	58 0
10	2318	38	4543	76	2731	46	0252	107	5306	134	8256	29	50
20	2357	39	4619	76	2777	46	0145	107	5172	134	8227	29	40
30	2396	39	4695	76	2823	46	1.660039	106	5039	133	8198	29	30
40	2434	38	4771	76	2868	45	1.659932	107	4905	134	8168	30	20
50	2473	39	4847	76	2914	46	9825	107	4772	133	8139	29	10
3 0	0.602512	39	0.754923	76	1.252960	46	1.659719	106	1.324638	134	0.798110	29	57 0
10	2550	38	4999	76	3006	46	9612	107	4505	133	8081	29	50
20	2589	39	5075	76	3052	46	9506	106	4371	134	8052	29	40
30	2628	39	5152	77	3098	46	9399	107	4238	133	8022	30	30
40	2666	38	5228	76	3144	46	9293	106	4104	134	7993	29	20
50	2705	39	5304	76	3189	45	9186	107	3971	133	7964	29	10
4 0	0.602744	39	0.755380	76	1.253235	46	1.659080	106	1.323837	134	0.797935	29	56 0
10	2783	39	5456	76	3281	46	8973	107	3704	133	7906	29	50
20	2821	38	5532	76	3327	46	8867	106	3570	134	7876	30	40
30	2860	39	5608	76	3373	46	8760	107	3437	133	7847	29	30
40	2899	39	5685	77	3419	46	8654	106	3303	134	7818	29	20
50	2937	38	5761	76	3465	46	8547	107	3170	133	7789	29	10
5 0	0.602976	39	0.755837	76	1.253511	46	1.658441	106	1.323037	133	0.797759	30	55 0
10	3015	39	5913	76	3557	46	8335	106	2903	134	7730	29	50
20	3053	38	5989	76	3603	46	8228	107	2770	133	7701	29	40
30	3092	39	6065	76	3649	46	8122	106	2637	133	7672	29	30
40	3131	39	6142	77	3695	46	8016	106	2504	133	7642	30	20
50	3169	38	6218	76	3741	46	7909	107	2370	134	7613	29	10
6 0	0.603208	39	0.756294	76	1.253787	46	1.657803	106	1.322237	133	0.797584	29	54 0
10	3247	39	6370	76	3833	46	7697	106	2104	133	7555	29	50
20	3285	38	6446	76	3879	46	7590	107	1971	133	7525	30	40
30	3324	39	6523	77	3924	45	7484	106	1837	134	7496	29	30
40	3363	39	6599	76	3970	46	7378	106	1704	133	7467	29	20
50	3401	38	6675	76	4016	46	7272	106	1571	133	7438	29	10
7 0	0.603440	39	0.756751	76	1.254062	46	1.657166	106	1.321438	133	0.797408	30	53 0
10	3479	39	6828	77	4109	47	7060	106	1305	133	7379	29	50
20	3517	38	6904	76	4155	46	6953	107	1172	133	7350	29	40
30	3556	39	6980	76	4201	46	6847	106	1039	133	7321	29	30
40	3595	39	7056	76	4247	46	6741	106	0905	134	7291	30	20
50	3633	38	7133	77	4293	46	6635	106	0772	133	7262	29	10
8 0	0.603672	39	0.757209	76	1.254339	46	1.656529	106	1.320639	133	0.797233	29	52 0
10	3711	39	7285	76	4385	46	6423	106	0506	133	7204	29	50
20	3749	38	7362	77	4431	46	6317	106	0373	133	7174	30	40
30	3788	39	7438	76	4477	46	6211	106	0240	133	7145	29	30
40	3826	38	7514	76	4523	46	6105	106	1.320107	133	7116	29	20
50	3865	39	7590	76	4569	46	5999	106	1.319974	133	7087	29	10
9 0	0.603904	39	0.757667	77	1.254615	46	1.655893	106	1.319841	133	0.797057	30	51 0
10	3942	38	7743	76	4661	46	5787	106	9708	133	7028	29	50
20	3981	39	7819	76	4707	46	5681	106	9576	132	6999	29	40
30	4020	39	7896	77	4753	46	5575	106	9443	133	6969	30	30
40	4058	38	7972	76	4799	46	5469	106	9310	133	6940	29	20
50	4097	39	8048	76	4846	47	5363	106	9177	133	6911	29	10
10 0	0.604136	39	0.758125	77	1.254892	46	1.655258	105	1.319044	133	0.796882	29	50 0
	cos		cotg		cosec		sec		tang		sin		

29

1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

38

1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

45

1	4.5
2	9.0
3	13.5
4	18.0
5	22.5
6	27.0
7	31.5
8	36.0
9	40.5

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

77

1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

106

1	10.6
2	21.2
3	31.8
4	42.4
5	53.0
6	63.6
7	74.2
8	84.8
9	95.4

131

1	13.1
2	26.2
3	39.3
4	52.4
5	65.5
6	78.6
7	91.7
8	104.8
9	117.9

133

1	13.3
2	26.6
3	39.9
4	53.2
5	66.5
6	79.8
7	93.1
8	106.4
9	119.7

52°

37°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.604136		0.758125		1.254892		1.655258		1.319044		0.796882		**50′** 0″
10	4174	38	8201	76	4938	46	5152	106	8911	133	6852	30	50
20	4213	39	8277	76	4984	46	5046	106	8778	133	6823	29	40
30	4252	39	8354	77	5030	46	4940	106	8646	132	6794	29	30
40	4290	38	8430	76	5076	46	4834	106	8513	133	6764	30	20
50	4329	39	8507	77	5122	46	4728	106	8380	133	6735	29	10
11 0	0.604367	38	0.758583	76	1.255169	47	1.654623	105	1.318247	133	0.796706	29	**49** 0
10	4406	39	8659	76	5215	46	4517	106	8115	132	6676	30	50
20	4445	39	8736	77	5261	46	4411	106	7982	133	6647	29	40
30	4483	38	8812	76	5307	46	4306	105	7849	133	6618	29	30
40	4522	39	8888	76	5353	46	4200	106	7717	132	6589	29	20
50	4560	38	8965	77	5399	46	4094	106	7584	133	6559	30	10
12 0	0.604599	39	0.759041	76	1.255446	47	1.653989	105	1.317451	133	0.796530	29	**48** 0
10	4638	39	9118	77	5492	46	3883	106	7319	132	6501	29	50
20	4676	38	9194	76	5538	46	3777	106	7186	133	6471	30	40
30	4715	39	9271	77	5584	46	3672	105	7054	132	6442	29	30
40	4754	39	9347	76	5630	46	3566	106	6921	133	6413	29	20
50	4792	38	9423	76	5677	47	3461	105	6788	133	6383	30	10
13 0	0.604831	39	0.759500	77	1.255723	46	1.653355	106	1.316656	132	0.796354	29	**47** 0
10	4869	38	9576	76	5769	46	3249	106	6523	133	6325	29	50
20	4908	39	9653	77	5815	46	3144	105	6391	132	6295	30	40
30	4947	39	9729	76	5862	47	3038	106	6258	133	6266	29	30
40	4985	38	9806	77	5908	46	2933	105	6126	132	6237	29	20
50	5024	39	9882	76	5954	46	2828	105	5993	133	6207	30	10
14 0	0.605062	38	0.759959	77	1.256000	46	1.652722	106	1.315861	132	0.796178	29	**46** 0
10	5101	39	0.760035	76	6047	47	2617	105	5729	132	6149	29	50
20	5140	39	0112	77	6093	46	2511	106	5596	133	6119	30	40
30	5178	38	0188	76	6139	46	2406	105	5464	132	6090	29	30
40	5217	39	0265	77	6186	47	2300	106	5331	133	6061	29	20
50	5255	38	0341	76	6232	46	2195	105	5199	132	6031	30	10
15 0	0.605294	39	0.760418	77	1.256278	46	1.652090	105	1.315067	132	0.796002	29	**45** 0
10	5333	39	0494	76	6325	47	1984	106	4934	133	5973	29	50
20	5371	38	0571	77	6371	46	1879	105	4802	132	5943	30	40
30	5410	39	0647	76	6417	46	1774	105	4670	132	5914	29	30
40	5448	38	0724	77	6464	47	1669	105	4538	132	5885	29	20
50	5487	39	0800	76	6510	46	1563	106	4405	133	5855	30	10
16 0	0.605526	39	0.760877	77	1.256556	46	1.651458	105	1.314273	132	0.795826	29	**44** 0
10	5564	38	0953	76	6603	47	1353	105	4141	132	5797	29	50
20	5603	39	1030	77	6649	46	1248	105	4009	132	5767	30	40
30	5641	38	1107	77	6695	46	1142	106	3877	132	5738	29	30
40	5680	39	1183	76	6742	47	1037	105	3744	133	5708	30	20
50	5718	38	1260	77	6788	46	0932	105	3612	132	5679	29	10
17 0	0.605757	39	0.761336	76	1.256834	46	1.650827	105	1.313480	132	0.795650	29	**43** 0
10	5796	39	1413	77	6881	47	0722	105	3348	132	5620	30	50
20	5834	38	1489	76	6927	46	0617	105	3216	132	5591	29	40
30	5873	39	1566	77	6974	47	0512	105	3084	132	5562	29	30
40	5911	38	1643	77	7020	46	0407	105	2952	132	5532	30	20
50	5950	39	1719	76	7067	47	0302	105	2820	132	5503	29	10
18 0	0.605988	38	0.761796	77	1.257113	46	1.650197	105	1.312688	132	0.795473	30	**42** 0
10	6027	39	1872	76	7159	46	1.650092	105	2556	132	5444	29	50
20	6066	39	1949	77	7206	47	1.649987	105	2424	132	5415	29	40
30	6104	38	2026	77	7252	46	9882	105	2292	132	5385	30	30
40	6143	39	2102	76	7299	47	9777	105	2160	132	5356	29	20
50	6181	38	2179	77	7345	46	9672	105	2028	132	5327	29	10
19 0	0.606220	39	0.762256	77	1.257392	47	1.649567	105	1.311896	132	0.795297	30	**41** 0
10	6258	38	2332	76	7438	46	9462	105	1764	132	5268	29	50
20	6297	39	2409	77	7485	47	9357	105	1632	132	5238	30	40
30	6335	38	2486	77	7531	46	9252	105	1500	132	5209	29	30
40	6374	39	2562	76	7578	47	9147	105	1368	132	5180	29	20
50	6413	39	2639	77	7624	46	9042	105	1236	132	5150	30	10
20 0	0.606451	38	0.762716	77	1.257671	47	1.648938	104	1.311105	131	0.795121	29	**40** 0
	cos		cotg		cosec		sec		tang		sin		

30		39		46		76		104		107		132		134	
1	3.0	1	3.9	1	4.6	1	7.6	1	10.4	1	10.7	1	13.2	1	13.4
2	6.0	2	7.8	2	9.2	2	15.2	2	20.8	2	21.4	2	26.4	2	26.8
3	9.0	3	11.7	3	13.8	3	22.8	3	31.2	3	32.1	3	39.6	3	40.2
4	12.0	4	15.6	4	18.4	4	30.4	4	41.6	4	42.8	4	52.8	4	53.6
5	15.0	5	19.5	5	23.0	5	38.0	5	52.0	5	53.5	5	66.0	5	67.0
6	18.0	6	23.4	6	27.6	6	45.6	6	62.4	6	64.2	6	79.2	6	80.4
7	21.0	7	27.3	7	32.2	7	53.2	7	72.8	7	74.9	7	92.4	7	93.8
8	24.0	8	31.2	8	36.8	8	60.8	8	83.2	8	85.6	8	105.6	8	107.2
9	27.0	9	35.1	9	41.4	9	68.4	9	93.6	9	96.3	9	118.8	9	120.6

52°

37°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.606451		0.762716		1.257671		1.648938		1.311105		0.795121		**40′** 0″
10	6490	39	2792	76	7717	46	8833	105	0973	132	5091	30	50
20	6528	38	2869	77	7764	47	8728	105	0841	132	5062	29	40
30	6567	39	2946	77	7810	46	8623	105	0709	132	5033	29	30
40	6605	38	3022	76	7857	47	8518	105	0577	132	5003	30	20
50	6644	39	3099	77	7903	46	8414	104	0446	131	4974	29	10
21 0	0.606682	38	0.763176	77	1.257950	47	1.648309	105	1.310314	132	0.794944	30	**39** 0
10	6721	39	3253	77	7996	46	8204	105	0182	132	4915	29	50
20	6759	38	3329	76	8043	47	8100	104	1.310051	131	4886	29	40
30	6798	39	3406	77	8089	46	7995	105	1.309919	132	4856	30	30
40	6836	38	3483	77	8136	47	7890	105	9787	132	4827	29	20
50	6875	39	3560	77	8182	46	7786	104	9656	131	4797	30	10
22 0	0.606914	39	0.763636	76	1.258229	47	1.647681	105	1.309524	132	0.794768	29	**38** 0
10	6952	38	3713	77	8276	47	7576	105	9392	132	4738	30	50
20	6991	39	3790	77	8322	46	7472	104	9261	131	4709	29	40
30	7029	38	3867	77	8369	47	7367	105	9129	132	4680	29	30
40	7068	39	3943	76	8415	46	7263	104	8998	131	4650	30	20
50	7106	38	4020	77	8462	47	7158	105	8866	132	4621	29	10
23 0	0.607145	39	0.764097	77	1.258509	47	1.647054	104	1.308735	131	0.794591	30	**37** 0
10	7183	38	4174	77	8555	46	6949	105	8603	132	4562	29	50
20	7222	39	4250	76	8602	47	6845	104	8472	131	4532	30	40
30	7260	38	4327	77	8649	47	6740	105	8340	132	4503	29	30
40	7299	39	4404	77	8695	46	6636	104	8209	131	4474	29	20
50	7337	38	4481	77	8742	47	6531	105	8077	132	4444	30	10
24 0	0.607376	39	0.764558	77	1.258789	47	1.646427	104	1.307946	131	0.794415	29	**36** 0
10	7414	38	4635	77	8835	46	6323	104	7814	132	4385	30	50
20	7453	39	4711	76	8882	47	6218	105	7683	131	4356	29	40
30	7491	38	4788	77	8929	47	6114	104	7552	131	4326	30	30
40	7530	39	4865	77	8975	46	6010	104	7420	132	4297	29	20
50	7568	38	4942	77	9022	47	5905	105	7289	131	4267	30	10
25 0	0.607607	39	0.765019	77	1.259069	47	1.645801	104	1.307157	132	0.794238	29	**35** 0
10	7645	38	5096	77	9115	46	5697	104	7026	131	4208	30	50
20	7684	39	5172	76	9162	47	5592	105	6895	131	4179	29	40
30	7722	38	5249	77	9209	47	5488	104	6764	131	4150	29	30
40	7761	39	5326	77	9255	46	5384	104	6632	132	4120	30	20
50	7799	38	5403	77	9302	47	5280	104	6501	131	4091	29	10
26 0	0.607838	39	0.765480	77	1.259349	47	1.645175	105	1.306370	131	0.794061	30	**34** 0
10	7876	38	5557	77	9396	47	5071	104	6239	131	4032	29	50
20	7915	39	5634	77	9442	46	4967	104	6107	132	4002	30	40
30	7953	38	5711	77	9489	47	4863	104	5976	131	3973	29	30
40	7992	39	5788	77	9536	47	4759	104	5845	131	3943	30	20
50	8030	38	5865	77	9583	47	4655	104	5714	131	3914	29	10
27 0	0.608069	39	0.765941	76	1.259629	46	1.644551	104	1.305583	131	0.793884	30	**33** 0
10	8107	38	6018	77	9676	47	4446	105	5452	131	3855	29	50
20	8146	39	6095	77	9723	47	4342	104	5321	131	3825	30	40
30	8184	38	6172	77	9770	47	4238	104	5190	131	3796	29	30
40	8223	39	6249	77	9817	47	4134	104	5059	131	3766	30	20
50	8261	38	6326	77	9863	46	4030	104	4927	132	3737	29	10
28 0	0.608300	39	0.766403	77	1.259910	47	1.643926	104	1.304796	131	0.793707	30	**32** 0
10	8338	38	6480	77	1.259957	47	3822	104	4665	131	3678	29	50
20	8377	39	6557	77	1.260004	47	3718	104	4534	131	3648	30	40
30	8415	38	6634	77	0051	47	3614	104	4403	131	3619	29	30
40	8454	39	6711	77	0097	46	3510	104	4272	131	3589	30	20
50	8492	38	6788	77	0144	47	3407	103	4142	130	3560	29	10
29 0	0.608531	39	0.766865	77	1.260191	47	1.643303	104	1.304011	131	0.793530	30	**31** 0
10	8569	38	6942	77	0238	47	3199	104	3880	131	3501	29	50
20	8608	39	7019	77	0285	47	3095	104	3749	131	3471	30	40
30	8646	38	7096	77	0332	47	2991	104	3618	131	3442	29	30
40	8685	39	7173	77	0379	47	2887	104	3487	131	3412	30	20
50	8723	38	7250	77	0426	47	2783	104	3356	131	3383	29	10
30 0	0.608761	38	0.767327	77	1.260472	46	1.642680	103	1.303225	131	0.793353	30	**30** 0
	cos		cotg		cosec		sec		tang		sin		

29

1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

38

1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

46

1	4.6
2	9.2
3	13.8
4	18.4
5	23.0
6	27.6
7	32.2
8	36.8
9	41.4

48

1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

77

1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

102

1	10.2
2	20.4
3	30.6
4	40.8
5	51.0
6	61.2
7	71.4
8	81.6
9	91.8

105

1	10.5
2	21.0
3	31.5
4	42.0
5	52.5
6	63.0
7	73.5
8	84.0
9	94.5

130

1	13.0
2	26.0
3	39.0
4	52.0
5	65.0
6	78.0
7	91.0
8	104.0
9	117.0

52°

37°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.608761		0.767327		1.260472		1.642680		1.303225		0.793353		**30′** 0″
10	8800	39	7404	77	0519	47	2576	104	3095	130	3324	29	50
20	8838	38	7481	77	0566	47	2472	104	2964	131	3294	30	40
30	8877	39	7558	77	0613	47	2368	104	2833	131	3265	29	30
40	8915	38	7635	77	0660	47	2265	103	2702	131	3235	30	20
50	8954	39	7712	77	0707	47	2161	104	2571	131	3206	29	10
31 0	0.608992	38	0.767789	77	1.260754	47	1.642057	104	1.302441	130	0.793176	30	**29** 0
10	9031	39	7866	77	0801	47	1954	103	2310	131	3147	29	50
20	9069	38	7943	77	0848	47	1850	104	2179	131	3117	30	40
30	9108	39	8020	77	0895	47	1746	104	2049	130	3088	29	30
40	9146	38	8098	78	0942	47	1643	103	1918	131	3058	30	20
50	9184	38	8175	77	0989	47	1539	104	1787	131	3029	29	10
32 0	0.609223	39	0.768252	77	1.261036	47	1.641435	104	1.301657	130	0.792999	30	**28** 0
10	9261	38	8329	77	1083	47	1332	103	1526	131	2970	29	50
20	9300	39	8406	77	1130	47	1228	104	1395	131	2940	30	40
30	9338	38	8483	77	1177	47	1125	103	1265	130	2910	30	30
40	9377	39	8560	77	1223	46	1021	104	1134	131	2881	29	20
50	9415	38	8637	77	1270	47	0918	103	1004	130	2851	30	10
33 0	0.609454	39	0.768714	77	1.261317	47	1.640814	104	1.300873	131	0.792822	29	**27** 0
10	9492	38	8792	78	1365	48	0711	103	0743	130	2792	30	50
20	9530	38	8869	77	1412	47	0607	104	0612	131	2763	29	40
30	9569	39	8946	77	1459	47	0504	103	0482	130	2733	30	30
40	9607	38	9023	77	1506	47	0400	104	0351	131	2704	29	20
50	9646	39	9100	77	1553	47	0297	103	0221	130	2674	30	10
34 0	0.609684	38	0.769177	77	1.261600	47	1.640194	103	1.300090	131	0.792644	30	**26** 0
10	9723	39	9254	77	1647	47	1.640090	104	1.299960	130	2615	29	50
20	9761	38	9332	78	1694	47	1.639987	103	9830	130	2585	30	40
30	9799	38	9409	77	1741	47	9884	103	9699	131	2556	29	30
40	9838	39	9486	77	1788	47	9780	104	9569	130	2526	30	20
50	9876	38	9563	77	1835	47	9677	103	9438	131	2497	29	10
35 0	0.609915	39	0.769640	77	1.261882	47	1.639574	103	1.299308	130	0.792467	30	**25** 0
10	9953	38	9718	78	1929	47	9470	104	9178	130	2438	29	50
20	0.609992	39	9795	77	1976	47	9367	103	9048	130	2408	30	40
30	0.610030	38	9872	77	2023	47	9264	103	8917	131	2378	30	30
40	0068	38	0.769949	77	2070	47	9161	103	8787	130	2349	29	20
50	0107	39	0.770026	77	2118	48	9057	104	8657	130	2319	30	10
36 0	0.610145	38	0.770104	78	1.262165	47	1.638954	103	1.298526	131	0.792290	29	**24** 0
10	0184	39	0181	77	2212	47	8851	103	8396	130	2260	30	50
20	0222	38	0258	77	2259	47	8748	103	8266	130	2230	30	40
30	0260	38	0335	77	2306	47	8645	103	8136	130	2201	29	30
40	0299	39	0413	78	2353	47	8542	103	8006	130	2171	30	20
50	0337	38	0490	77	2400	47	8439	103	7876	130	2142	29	10
37 0	0.610376	39	0.770567	77	1.262448	48	1.638335	104	1.297745	131	0.792112	30	**23** 0
10	0414	38	0644	77	2495	47	8232	103	7615	130	2083	29	50
20	0452	38	0722	78	2542	47	8129	103	7485	130	2053	30	40
30	0491	39	0799	77	2589	47	8026	103	7355	130	2023	30	30
40	0529	38	0876	77	2636	47	7923	103	7225	130	1994	29	20
50	0568	39	0954	78	2683	47	7820	103	7095	130	1964	30	10
38 0	0.610606	38	0.771031	77	1.262731	48	1.637717	103	1.296965	130	0.791935	29	**22** 0
10	0644	38	1108	77	2778	47	7614	103	6835	130	1905	30	50
20	0683	39	1186	78	2825	47	7511	103	6705	130	1875	30	40
30	0721	38	1263	77	2872	47	7408	103	6575	130	1846	29	30
40	0760	39	1340	77	2919	47	7306	102	6445	130	1816	30	20
50	0798	38	1417	77	2967	48	7203	103	6315	130	1787	29	10
39 0	0.610836	38	0.771495	78	1.263014	47	1.637100	103	1.296185	130	0.791757	30	**21** 0
10	0875	39	1572	77	3061	47	6997	103	6055	130	1727	30	50
20	0913	38	1650	78	3108	47	6894	103	5925	130	1698	29	40
30	0951	38	1727	77	3156	48	6791	103	5795	130	1668	30	30
40	0990	39	1804	77	3203	47	6688	103	5665	130	1638	30	20
50	1028	38	1882	78	3250	47	6586	102	5536	129	1609	29	10
40 0	0.611067	39	0.771959	77	1.263298	48	1.636483	103	1.295406	130	0.791579	30	**20** 0
	cos		cotg		cosec		sec		tang		sin		

30		39		47		76		78		103		129		132	
1	3.0	1	3.9	1	4.7	1	7.6	1	7.8	1	10.3	1	12.9	1	13.2
2	6.0	2	7.8	2	9.4	2	15.2	2	15.6	2	20.6	2	25.8	2	26.4
3	9.0	3	11.7	3	14.1	3	22.8	3	23.4	3	30.9	3	38.7	3	39.6
4	12.0	4	15.6	4	18.8	4	30.4	4	31.2	4	41.2	4	51.6	4	52.8
5	15.0	5	19.5	5	23.5	5	38.0	5	39.0	5	51.5	5	64.5	5	66.0
6	18.0	6	23.4	6	28.2	6	45.6	6	46.8	6	61.8	6	77.4	6	79.2
7	21.0	7	27.3	7	32.9	7	53.2	7	54.6	7	72.1	7	90.3	7	92.4
8	24.0	8	31.2	8	37.6	8	60.8	8	62.4	8	82.4	8	103.2	8	105.6
9	27.0	9	35.1	9	42.3	9	68.4	9	70.2	9	92.7	9	116.1	9	118.8

52°

37°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.611067		0.771959		1.263298		1.636483		1.295406		0.791579		**20′** 0″
10	1105	38	2036	77	3345	47	6380	103	5276	130	1550	29	50
20	1143	38	2114	78	3392	47	6277	103	5146	130	1520	30	40
30	1182	39	2191	77	3439	47	6175	102	5016	130	1490	30	30
40	1220	38	2268	77	3487	48	6072	103	4886	130	1461	29	20
50	1258	38	2346	78	3534	47	5969	103	4757	129	1431	30	10
41 0	0.611297	39	0.772423	77	1.263581	47	1.635866	103	1.294627	130	0.791401	30	**19** 0
10	1335	38	2501	78	3629	48	5764	102	4497	130	1372	29	50
20	1374	39	2578	77	3676	47	5661	103	4368	129	1342	30	40
30	1412	38	2656	78	3723	47	5558	103	4238	130	1312	30	30
40	1450	38	2733	77	3771	48	5456	102	4108	130	1283	29	20
50	1489	39	2810	77	3818	47	5353	103	3978	130	1253	30	10
42 0	0.611527	38	0.772888	78	1.263865	47	1.635251	102	1.293849	129	0.791224	29	**18** 0
10	1565	38	2965	77	3913	48	5148	103	3719	130	1194	30	50
20	1604	39	3043	78	3960	47	5046	102	3590	129	1164	30	40
30	1642	38	3120	77	4007	47	4943	103	3460	130	1135	29	30
40	1680	38	3198	78	4055	48	4840	103	3330	130	1105	30	20
50	1719	39	3275	77	4102	47	4738	102	3201	129	1075	30	10
43 0	0.611757	38	0.773353	78	1.264150	48	1.634636	102	1.293071	130	0.791046	29	**17** 0
10	1796	39	3430	77	4197	47	4533	103	2942	129	1016	30	50
20	1834	38	3508	78	4244	47	4431	102	2812	130	0986	30	40
30	1872	38	3585	77	4292	48	4328	103	2683	129	0957	29	30
40	1911	39	3663	78	4339	47	4226	102	2553	130	0927	30	20
50	1949	38	3740	77	4387	48	4123	103	2424	129	0897	30	10
44 0	0.611987	38	0.773818	78	1.264434	47	1.634021	102	1.292294	130	0.790868	29	**16** 0
10	2026	39	3895	77	4482	48	3919	102	2165	129	0838	30	50
20	2064	38	3973	78	4529	47	3816	103	2035	130	0808	30	40
30	2102	38	4050	77	4576	47	3714	102	1906	129	0779	29	30
40	2141	39	4128	78	4624	48	3612	102	1777	129	0749	30	20
50	2179	38	4205	77	4671	47	3509	103	1647	130	0719	30	10
45 0	0.612217	38	0.774283	78	1.264719	48	1.633407	102	1.291518	129	0.790690	29	**15** 0
10	2256	39	4360	77	4766	47	3305	102	1389	129	0660	30	50
20	2294	38	4438	78	4814	48	3202	103	1259	130	0630	30	40
30	2332	38	4515	77	4861	47	3100	102	1130	129	0601	29	30
40	2371	39	4593	78	4909	48	2998	102	1001	129	0571	30	20
50	2409	38	4671	78	4956	47	2896	102	0871	130	0541	30	10
46 0	0.612447	38	0.774748	77	1.265004	48	1.632794	102	1.290742	129	0.790511	30	**14** 0
10	2486	39	4826	78	5051	47	2691	103	0613	129	0482	29	50
20	2524	38	4903	77	5099	48	2589	102	0484	129	0452	30	40
30	2562	38	4981	78	5146	47	2487	102	0354	130	0422	30	30
40	2601	39	5058	77	5194	48	2385	102	0225	129	0393	29	20
50	2639	38	5136	78	5241	47	2283	102	1.290096	129	0363	30	10
47 0	0.612677	38	0.775214	78	1.265289	48	1.632181	102	1.289967	129	0.790333	30	**13** 0
10	2715	38	5291	77	5337	48	2079	102	9838	129	0304	29	50
20	2754	39	5369	78	5384	47	1977	102	9709	129	0274	30	40
30	2792	38	5447	78	5432	48	1875	102	9579	130	0244	30	30
40	2830	38	5524	77	5479	47	1773	102	9450	129	0214	30	20
50	2869	39	5602	78	5527	48	1671	102	9321	129	0185	29	10
48 0	0.612907	38	0.775680	78	1.265574	47	1.631569	102	1.289192	129	0.790155	30	**12** 0
10	2945	38	5757	77	5622	48	1467	102	9063	129	0125	30	50
20	2984	39	5835	78	5670	48	1365	102	8934	129	0096	29	40
30	3022	38	5912	77	5717	47	1263	102	8805	129	0066	30	30
40	3060	38	5990	78	5765	48	1161	102	8676	129	0036	30	20
50	3099	39	6068	78	5813	48	1059	102	8547	129	0.790006	30	10
49 0	0.613137	38	0.776146	78	1.265860	47	1.630957	102	1.288418	129	0.789977	29	**11** 0
10	3175	38	6223	77	5908	48	0855	102	8289	129	9947	30	50
20	3213	38	6301	78	5955	47	0753	102	8160	129	9917	30	40
30	3252	39	6379	78	6003	48	0652	101	8031	129	9888	29	30
40	3290	38	6456	77	6051	48	0550	102	7902	129	9858	30	20
50	3328	38	6534	78	6098	47	0448	102	7774	128	9828	30	10
50 0	0.613367	39	0.776612	78	1.266146	48	1.630346	102	1.287645	129	0.789798	30	**10** 0
	cos		cotg		cosec		sec		tang		sin		

29

1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

38

1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

47

1	4.7
2	9.4
3	14.1
4	18.8
5	23.5
6	28.2
7	32.9
8	37.6
9	42.3

77

1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

79

1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

102

1	10.2
2	20.4
3	30.6
4	40.8
5	51.0
6	61.2
7	71.4
8	81.6
9	91.8

127

1	12.7
2	25.4
3	38.1
4	50.8
5	63.5
6	76.2
7	88.9
8	101.6
9	114.3

129

1	12.9
2	25.8
3	38.7
4	51.6
5	64.5
6	77.4
7	90.3
8	103.2
9	116.1

52°

37°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.613367		0.776612		1.266146		1.630346		1.287645		0.789798		**10′** 0″
10	3405	38	6689	77	6194	48	0244	102	7516	129	9769	29	50
20	3443	38	6767	78	6241	47	0143	101	7387	129	9739	30	40
30	3482	39	6845	78	6289	48	1.630041	102	7258	129	9709	30	30
40	3520	38	6923	78	6337	48	1.629939	102	7129	129	9679	30	20
50	3558	38	7000	77	6384	47	9838	101	7001	128	9650	29	10
51 0	0.613596	38	0.777078	78	1.266432	48	1.629736	102	1.286872	129	0.789620	30	**9** 0
10	3635	39	7156	78	6480	48	9634	102	6743	129	9590	30	50
20	3673	38	7234	78	6528	48	9533	101	6614	129	9560	30	40
30	3711	38	7311	77	6575	47	9431	102	6486	128	9531	29	30
40	3749	38	7389	78	6623	48	9329	102	6357	129	9501	30	20
50	3788	39	7467	78	6671	48	9228	101	6228	129	9471	30	10
52 0	0.613826	38	0.777545	78	1.266719	48	1.629126	102	1.286099	129	0.789441	30	**8** 0
10	3864	38	7623	78	6766	47	9025	101	5971	128	9412	29	50
20	3903	39	7700	77	6814	48	8923	102	5842	129	9382	30	40
30	3941	38	7778	78	6862	48	8821	102	5714	128	9352	30	30
40	3979	38	7856	78	6910	48	8720	101	5585	129	9322	30	20
50	4017	38	7934	78	6957	47	8618	102	5456	129	9293	29	10
53 0	0.614056	39	0.778012	78	1.267005	48	1.628517	101	1.285328	128	0.789263	30	**7** 0
10	4094	38	8090	78	7053	48	8415	102	5199	129	9233	30	50
20	4132	38	8167	77	7101	48	8314	101	5071	128	9203	30	40
30	4170	38	8245	78	7149	48	8213	101	4942	129	9173	30	30
40	4209	39	8323	78	7196	47	8111	102	4814	128	9144	29	20
50	4247	38	8401	78	7244	48	8010	101	4685	129	9114	30	10
54 0	0.614285	38	0.778479	78	1.267292	48	1.627908	102	1.284557	128	0.789084	30	**6** 0
10	4323	38	8557	78	7340	48	7807	101	4428	129	9054	30	50
20	4362	39	8634	77	7388	48	7706	101	4300	128	9025	29	40
30	4400	38	8712	78	7436	48	7604	102	4171	129	8995	30	30
40	4438	38	8790	78	7483	47	7503	101	4043	128	8965	30	20
50	4476	38	8868	78	7531	48	7402	101	3914	129	8935	30	10
55 0	0.614515	39	0.778946	78	1.267579	48	1.627300	102	1.283786	128	0.788905	30	**5** 0
10	4553	38	9024	78	7627	48	7199	101	3658	128	8876	29	50
20	4591	38	9102	78	7675	48	7098	101	3529	129	8846	30	40
30	4629	38	9180	78	7723	48	6997	101	3401	128	8816	30	30
40	4668	39	9258	78	7771	48	6895	102	3273	128	8786	30	20
50	4706	38	9336	78	7819	48	6794	101	3144	129	8756	30	10
56 0	0.614744	38	0.779414	78	1.267866	47	1.626693	101	1.283016	128	0.788727	29	**4** 0
10	4782	38	9491	77	7914	48	6592	101	2888	128	8697	30	50
20	4821	39	9569	78	7962	48	6491	101	2759	129	8667	30	40
30	4859	38	9647	78	8010	48	6389	102	2631	128	8637	30	30
40	4897	38	9725	78	8058	48	6288	101	2503	128	8607	30	20
50	4935	38	9803	78	8106	48	6187	101	2375	128	8578	29	10
57 0	0.614974	39	0.779881	78	1.268154	48	1.626086	101	1.282247	128	0.788548	30	**3** 0
10	5012	38	0.779959	78	8202	48	5985	101	2118	129	8518	30	50
20	5050	38	0.780037	78	8250	48	5884	101	1990	128	8488	30	40
30	5088	38	0115	78	8298	48	5783	101	1862	128	8458	30	30
40	5126	38	0193	78	8346	48	5682	101	1734	128	8428	30	20
50	5165	39	0271	78	8394	48	5581	101	1606	128	8399	29	10
58 0	0.615203	38	0.780349	78	1.268442	48	1.625480	101	1.281478	128	0.788369	30	**2** 0
10	5241	38	0427	78	8490	48	5379	101	1350	128	8339	30	50
20	5279	38	0505	78	8538	48	5278	101	1221	129	8309	30	40
30	5318	39	0583	78	8586	48	5177	101	1093	128	8279	30	30
40	5356	38	0661	78	8634	48	5076	101	0965	128	8249	30	20
50	5394	38	0739	78	8682	48	4975	101	0837	128	8220	29	10
59 0	0.615432	38	0.780817	78	1.268730	48	1.624874	101	1.280709	128	0.788190	30	**1** 0
10	5470	38	0895	78	8778	48	4773	101	0581	128	8160	30	50
20	5509	39	0973	78	8826	48	4673	100	0453	128	8130	30	40
30	5547	38	1051	78	8874	48	4572	101	0325	128	8100	30	30
40	5585	38	1129	78	8922	48	4471	101	0197	128	8070	30	20
50	5623	38	1208	79	8970	48	4370	101	1.280070	127	8041	29	10
60 0	0.615661	38	0.781286	78	1.269018	48	1.624269	101	1.279942	128	0.788011	30	**0** 0
	cos		cotg		cosec		sec		tang		sin		

30		39		48		78		100		103		128		130	
1	3.0	1	3.9	1	4.8	1	7.8	1	10.0	1	10.3	1	12.8	1	13.0
2	6.0	2	7.8	2	9.6	2	15.6	2	20.0	2	20.6	2	25.6	2	26.0
3	9.0	3	11.7	3	14.4	3	23.4	3	30.0	3	30.9	3	38.4	3	39.0
4	12.0	4	15.6	4	19.2	4	31.2	4	40.0	4	41.2	4	51.2	4	52.0
5	15.0	5	19.5	5	24.0	5	39.0	5	50.0	5	51.5	5	64.0	5	65.0
6	18.0	6	23.4	6	28.8	6	46.8	6	60.0	6	61.8	6	76.8	6	78.0
7	21.0	7	27.3	7	33.6	7	54.6	7	70.0	7	72.1	7	89.6	7	91.0
8	24.0	8	31.2	8	38.4	8	62.4	8	80.0	8	82.4	8	102.4	8	104.0
9	27.0	9	35.1	9	43.2	9	70.2	9	90.0	9	92.7	9	115.2	9	117.0

52°

38°

0′ 0″	sin		tang		sec		cosec		cotg		cos		60′ 0″
	0.615661		0.781286		1.269018		1.624269		1.279942		0.788011		
10	5700	39	1364	78	9066	48	4168	101	9814	128	7981	30	50
20	5738	38	1442	78	9114	48	4068	100	9686	128	7951	30	40
30	5776	38	1520	78	9162	48	3967	101	9558	128	7921	30	30
40	5814	38	1598	78	9211	49	3866	101	9430	128	7891	30	20
50	5852	38	1676	78	9259	48	3765	101	9302	128	7861	30	10
1 0	0.615891	39	0.781754	78	1.269307	48	1.623665	100	1.279174	128	0.787832	29	59 0
10	5929	38	1832	78	9355	48	3564	101	9047	127	7802	30	50
20	5967	38	1910	78	9403	48	3463	101	8919	128	7772	30	40
30	6005	38	1989	79	9451	48	3363	100	8791	128	7742	30	30
40	6043	38	2067	78	9499	48	3262	101	8663	128	7712	30	20
50	6082	39	2145	78	9547	48	3162	100	8536	127	7682	30	10
2 0	0.616120	38	0.782223	78	1.269596	49	1.623061	101	1.278408	128	0.787652	30	58 0
10	6158	38	2301	78	9644	48	2960	101	8280	128	7623	29	50
20	6196	38	2379	78	9692	48	2860	100	8153	127	7593	30	40
30	6234	38	2457	78	9740	48	2759	101	8025	128	7563	30	30
40	6273	39	2536	79	9788	48	2659	100	7897	128	7533	30	20
50	6311	38	2614	78	9836	48	2558	101	7770	127	7503	30	10
3 0	0.616349	38	0.782692	78	1.269885	49	1.622458	100	1.277642	128	0.787473	30	57 0
10	6387	38	2770	78	9933	48	2357	101	7514	128	7443	30	50
20	6425	38	2848	78	1.269981	48	2257	100	7387	127	7413	30	40
30	6463	38	2927	79	1.270029	48	2156	101	7259	128	7384	29	30
40	6502	39	3005	78	0077	48	2056	100	7132	127	7354	30	20
50	6540	38	3083	78	0126	49	1955	101	7004	128	7324	30	10
4 0	0.616578	38	0.783161	78	1.270174	48	1.621855	100	1.276876	128	0.787294	30	56 0
10	6616	38	3239	78	0222	48	1755	100	6749	127	7264	30	50
20	6654	38	3318	79	0270	48	1654	101	6621	128	7234	30	40
30	6692	38	3396	78	0318	48	1554	100	6494	127	7204	30	30
40	6731	39	3474	78	0367	49	1453	101	6366	128	7174	30	20
50	6769	38	3552	78	0415	48	1353	100	6239	127	7144	30	10
5 0	0.616807	38	0.783631	79	1.270463	48	1.621253	100	1.276112	127	0.787114	30	55 0
10	6845	38	3709	78	0511	48	1153	100	5984	128	7085	29	50
20	6883	38	3787	78	0560	49	1052	101	5857	127	7055	30	40
30	6921	38	3865	78	0608	48	0952	100	5729	128	7025	30	30
40	6960	39	3944	79	0656	48	0852	100	5602	127	6995	30	20
50	6998	38	4022	78	0705	49	0752	100	5475	127	6965	30	10
6 0	0.617036	38	0.784100	78	1.270753	48	1.620651	101	1.275347	128	0.786935	30	54 0
10	7074	38	4178	78	0801	48	0551	100	5220	127	6905	30	50
20	7112	38	4257	79	0850	49	0451	100	5093	127	6875	30	40
30	7150	38	4335	78	0898	48	0351	100	4965	128	6845	30	30
40	7188	38	4413	78	0946	48	0251	100	4838	127	6815	30	20
50	7227	39	4492	79	0995	49	0150	101	4711	127	6785	30	10
7 0	0.617265	38	0.784570	78	1.271043	48	1.620050	100	1.274584	127	0.786756	29	53 0
10	7303	38	4648	78	1091	48	1.619950	100	4456	128	6726	30	50
20	7341	38	4727	79	1140	49	9850	100	4329	127	6696	30	40
30	7379	38	4805	78	1188	48	9750	100	4202	127	6666	30	30
40	7417	38	4883	78	1236	48	9650	100	4075	127	6636	30	20
50	7455	38	4962	79	1285	49	9550	100	3948	127	6606	30	10
8 0	0.617494	39	0.785040	78	1.271333	48	1.619450	100	1.273820	128	0.786576	30	52 0
10	7532	38	5118	78	1381	48	9350	100	3693	127	6546	30	50
20	7570	38	5197	79	1430	49	9250	100	3566	127	6516	30	40
30	7608	38	5275	78	1478	48	9150	100	3439	127	6486	30	30
40	7646	38	5354	79	1527	49	9050	100	3312	127	6456	30	20
50	7684	38	5432	78	1575	48	8950	100	3185	127	6426	30	10
9 0	0.617722	38	0.785510	78	1.271624	49	1.6188850	100	1.273058	127	0.786396	30	51 0
10	7760	38	5589	79	1672	48	8750	100	2931	127	6366	30	50
20	7799	39	5667	78	1720	48	8650	100	2804	127	6336	30	40
30	7837	38	5746	79	1769	49	8551	99	2677	127	6306	30	30
40	7875	38	5824	78	1817	48	8451	100	2550	127	6276	30	20
50	7913	38	5902	78	1866	49	8351	100	2423	127	6246	30	10
10 0	0.617951	38	0.785981	79	1.271914	48	1.618251	100	1.272296	127	0.786217	29	50 0
	cos		cotg		cosec		sec		tang		sin		

29

1	2.9
2	5.8
3	8.7
4	11.6
5	14.5
6	17.4
7	20.3
8	23.2
9	26.1

31

1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

39

1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

79

1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

99

1	9.9
2	19.8
3	29.7
4	39.6
5	49.5
6	59.4
7	69.3
8	79.2
9	89.1

101

1	10.1
2	20.2
3	30.3
4	40.4
5	50.5
6	60.6
7	70.7
8	80.8
9	90.9

127

1	12.7
2	25.4
3	38.1
4	50.8
5	63.5
6	76.2
7	88.9
8	101.6
9	114.3

51°

38°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.617951		0.785981		1.271914		1.618251		1.272296		0.786217		**50′** 0″
10	7989	38	6059	78	1963	49	8151	100	2169	127	6187	30	50
20	8027	38	6138	79	2011	48	8051	100	2042	127	6157	30	40
30	8065	38	6216	78	2060	49	7952	99	1915	127	6127	30	30
40	8104	39	6295	79	2108	48	7852	100	1788	127	6097	30	20
50	8142	38	6373	78	2157	49	7752	100	1661	127	6067	30	10
11 0	0.618180	38	0.786451	78	1.272205	48	1.617652	100	1.271534	127	0.786037	30	**49** 0
10	8218	38	6530	79	2254	49	7553	99	1407	127	6007	30	50
20	8256	38	6608	78	2302	48	7453	100	1281	126	5977	30	40
30	8294	38	6687	79	2351	49	7353	100	1154	127	5947	30	30
40	8332	38	6765	78	2399	48	7254	99	1027	127	5917	30	20
50	8370	38	6844	79	2448	49	7154	100	0900	127	5887	30	10
12 0	0.618408	38	0.786922	78	1.272496	48	1.617054	100	1.270773	127	0.785857	30	**48** 0
10	8446	38	7001	79	2545	49	6955	99	0647	126	5827	30	50
20	8485	39	7079	78	2593	48	6855	100	0520	127	5797	30	40
30	8523	38	7158	79	2642	49	6756	99	0393	127	5767	30	30
40	8561	38	7236	78	2691	49	6656	100	0266	127	5737	30	20
50	8599	38	7315	79	2739	48	6556	100	0140	126	5707	30	10
13 0	0.618637	38	0.787394	79	1.272788	49	1.616457	99	1.270013	127	0.785677	30	**47** 0
10	8675	38	7472	78	2836	48	6357	100	1.269886	127	5647	30	50
20	8713	38	7551	79	2885	49	6258	99	9760	126	5617	30	40
30	8751	38	7629	78	2934	49	6158	100	9633	127	5587	30	30
40	8789	38	7708	79	2982	48	6059	99	9506	127	5557	30	20
50	8827	38	7786	78	3031	49	5959	100	9380	126	5527	30	10
14 0	0.618865	38	0.787865	79	1.273079	48	1.615860	99	1.269253	127	0.785497	30	**46** 0
10	8904	39	7943	78	3128	49	5761	99	9127	126	5467	30	50
20	8942	38	8022	79	3177	49	5661	100	9000	127	5437	30	40
30	8980	38	8101	79	3225	48	5562	99	8873	127	5407	30	30
40	9018	38	8179	78	3274	49	5462	100	8747	126	5377	30	20
50	9056	38	8258	79	3323	49	5363	99	8620	127	5347	30	10
15 0	0.619094	38	0.788336	78	1.273371	48	1.615264	99	1.268494	126	0.785317	30	**45** 0
10	9132	38	8415	79	3420	49	5164	100	8367	127	5287	30	50
20	9170	38	8494	79	3469	49	5065	99	8241	126	5257	30	40
30	9208	38	8572	78	3517	48	4966	99	8115	126	5227	30	30
40	9246	38	8651	79	3566	49	4867	99	7988	127	5197	30	20
50	9284	38	8730	79	3615	49	4767	100	7862	126	5167	30	10
16 0	0.619322	38	0.788808	78	1.273663	48	1.614668	99	1.267735	127	0.785137	30	**44** 0
10	9360	38	8887	79	3712	49	4569	99	7609	126	5107	30	50
20	9398	38	8966	79	3761	49	4470	99	7483	126	5077	30	40
30	9437	39	9044	78	3810	49	4370	100	7356	127	5047	30	30
40	9475	38	9123	79	3858	48	4271	99	7230	126	5017	30	20
50	9513	38	9202	79	3907	49	4172	99	7103	127	4987	30	10
17 0	0.619551	38	0.789280	78	1.273956	49	1.614073	99	1.266977	126	0.784957	30	**43** 0
10	9589	38	9359	79	4004	48	3974	99	6851	126	4927	30	50
20	9627	38	9438	79	4053	49	3875	99	6725	126	4897	30	40
30	9665	38	9516	78	4102	49	3775	100	6598	127	4867	30	30
40	9703	38	9595	79	4151	49	3676	99	6472	126	4836	31	20
50	9741	38	9674	79	4200	49	3577	99	6346	126	4806	30	10
18 0	0.619779	38	0.789752	78	1.274248	48	1.613478	99	1.266220	126	0.784776	30	**42** 0
10	9817	38	9831	79	4297	49	3379	99	6093	127	4746	30	50
20	9855	38	9910	79	4346	49	3280	99	5967	126	4716	30	40
30	9893	38	0.789989	79	4395	49	3181	99	5841	126	4686	30	30
40	9931	38	0.790067	78	4444	49	3082	99	5715	126	4656	30	20
50	0.619969	38	0146	79	4492	48	2983	99	5589	126	4626	30	10
19 0	0.620007	38	0.790225	79	1.274541	49	1.612884	99	1.265463	126	0.784596	30	**41** 0
10	0045	38	0304	79	4590	49	2785	99	5337	126	4566	30	50
20	0083	38	0382	78	4639	49	2686	99	5210	127	4536	30	40
30	0121	38	0461	79	4688	49	2587	99	5084	126	4506	30	30
40	0159	38	0540	79	4737	49	2489	98	4958	126	4476	30	20
50	0197	38	0619	79	4785	48	2390	99	4832	126	4446	30	10
20 0	0.620235	38	0.790697	78	1.274834	49	1.612291	99	1.264706	126	0.784416	30	**40** 0
	cos		cotg		cosec		sec		tang		sin		

30		38		48		78		98		100		126		128	
1	3.0	1	3.8	1	4.8	1	7.8	1	9.8	1	10.0	1	12.6	1	12.8
2	6.0	2	7.6	2	9.6	2	15.6	2	19.6	2	20.0	2	25.2	2	25.6
3	9.0	3	11.4	3	14.4	3	23.4	3	29.4	3	30.0	3	37.8	3	38.4
4	12.0	4	15.2	4	19.2	4	31.2	4	39.2	4	40.0	4	50.4	4	51.2
5	15.0	5	19.0	5	24.0	5	39.0	5	49.0	5	50.0	5	63.0	5	64.0
6	18.0	6	22.8	6	28.8	6	46.8	6	58.8	6	60.0	6	75.6	6	76.8
7	21.0	7	26.6	7	33.6	7	54.6	7	68.6	7	70.0	7	88.2	7	89.6
8	24.0	8	30.4	8	38.4	8	62.4	8	78.4	8	80.0	8	100.8	8	102.4
9	27.0	9	34.2	9	43.2	9	70.2	9	88.2	9	90.0	9	113.4	9	115.2

51°

38°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.620235		0.790697		1.274834		1.612291		1.264706		0.784416		**40′** 0″
10	0274	39	0776	79	4883	49	2192	99	4580	126	4386	30	50
20	0312	38	0855	79	4932	49	2093	99	4454	126	4356	30	40
30	0350	38	0934	79	4981	49	1994	99	4328	126	4325	31	30
40	0388	38	1013	79	5030	49	1896	98	4202	126	4295	30	20
50	0426	38	1092	79	5079	49	1797	99	4076	126	4265	30	10
21 0	0.620464	38	0.791170	78	1.275128	49	1.611698	99	1.263950	126	0.784235	30	**39** 0
10	0502	38	1249	79	5177	49	1599	99	3824	126	4205	30	50
20	0540	38	1328	79	5225	48	1500	99	3698	126	4175	30	40
30	0578	38	1407	79	5274	49	1402	98	3573	125	4145	30	30
40	0616	38	1486	79	5323	49	1303	99	3447	126	4115	30	20
50	0654	38	1565	79	5372	49	1204	99	3321	126	4085	30	10
22 0	0.620692	38	0.791643	78	1.275421	49	1.611106	98	1.263195	126	0.784055	30	**38** 0
10	0730	38	1722	79	5470	49	1007	99	3069	126	4025	30	50
20	0768	38	1801	79	5519	49	0908	99	2943	126	3995	30	40
30	0806	38	1880	79	5568	49	0810	98	2818	125	3964	31	30
40	0844	38	1959	79	5617	49	0711	99	2692	126	3934	30	20
50	0882	38	2038	79	5666	49	0613	98	2566	126	3904	30	10
23 0	0.620920	38	0.792117	79	1.275715	49	1.610514	99	1.262440	126	0.783874	30	**37** 0
10	0958	38	2196	79	5764	49	0415	99	2314	126	3844	30	50
20	0996	38	2275	79	5813	49	0317	98	2189	125	3814	30	40
30	1034	38	2353	78	5862	49	0218	99	2063	126	3784	30	30
40	1072	38	2432	79	5911	49	0120	98	1937	126	3754	30	20
50	1110	38	2511	79	5960	49	1.610021	99	1812	125	3724	30	10
24 0	0.621148	38	0.792590	79	1.276009	49	1.609923	98	1.261686	126	0.783693	31	**36** 0
10	1186	38	2669	79	6058	49	9824	99	1560	126	3663	30	50
20	1224	38	2748	79	6107	49	9726	98	1435	125	3633	30	40
30	1262	38	2827	79	6156	49	9627	99	1309	126	3603	30	30
40	1300	38	2906	79	6205	49	9529	98	1183	126	3573	30	20
50	1338	38	2985	79	6254	49	9431	98	1058	125	3543	30	10
25 0	0.621376	38	0.793064	79	1.276303	49	1.609332	99	1.260932	126	0.783513	30	**35** 0
10	1414	38	3143	79	6353	50	9234	98	0807	125	3483	30	50
20	1452	38	3222	79	6402	49	9136	98	0681	126	3452	31	40
30	1490	38	3301	79	6451	49	9037	99	0556	125	3422	30	30
40	1528	38	3380	79	6500	49	8939	98	0430	126	3392	30	20
50	1566	38	3459	79	6549	49	8841	98	0305	125	3362	30	10
26 0	0.621604	38	0.793538	79	1.276598	49	1.608742	99	1.260179	126	0.783332	30	**34** 0
10	1642	38	3617	79	6647	49	8644	98	1.260054	125	3302	30	50
20	1680	38	3696	79	6696	49	8546	98	1.259928	126	3272	30	40
30	1718	38	3775	79	6745	49	8447	99	9803	125	3242	30	30
40	1756	38	3854	79	6794	49	8349	98	9677	126	3211	31	20
50	1793	37	3933	79	6844	50	8251	98	9552	125	3181	30	10
27 0	0.621831	38	0.794012	79	1.276893	49	1.608153	98	1.259427	125	0.783151	30	**33** 0
10	1869	38	4091	79	6942	49	8055	98	9301	126	3121	30	50
20	1907	38	4170	79	6991	49	7956	99	9176	125	3091	30	40
30	1945	38	4249	79	7040	49	7858	98	9051	125	3061	30	30
40	1983	38	4328	79	7089	49	7760	98	8925	126	3031	30	20
50	2021	38	4407	79	7139	50	7662	98	8800	125	3000	31	10
28 0	0.622059	38	0.794486	79	1.277188	49	1.607564	98	1.258675	125	0.782970	30	**32** 0
10	2097	38	4566	80	7237	49	7466	98	8549	126	2940	30	50
20	2135	38	4645	79	7286	49	7368	98	8424	125	2910	30	40
30	2173	38	4724	79	7335	49	7270	98	8299	125	2880	30	30
40	2211	38	4803	79	7385	50	7172	98	8174	125	2850	30	20
50	2249	38	4882	79	7434	49	7074	98	8048	126	2819	31	10
29 0	0.622287	38	0.794961	79	1.277483	49	1.606976	98	1.257923	125	0.782789	30	**31** 0
10	2325	38	5040	79	7532	49	6878	98	7798	125	2759	30	50
20	2363	38	5119	79	7582	50	6780	98	7673	125	2729	30	40
30	2401	38	5198	79	7631	49	6682	98	7548	125	2699	30	30
40	2439	38	5278	80	7680	49	6584	98	7423	125	2669	30	20
50	2477	38	5357	79	7729	49	6486	98	7297	126	2638	31	10
30 0	0.622515	38	0.795436	79	1.277779	50	1.606388	98	1.257172	125	0.782608	30	**30** 0
	cos		cotg		cosec		sec		tang		sin		

30

1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

37

1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

39

1	3.9
2	7.8
3	11.7
4	15.6
5	19.5
6	23.4
7	27.3
8	31.2
9	35.1

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

78

1	7.8
2	15.6
3	23.4
4	31.2
5	39.0
6	46.8
7	54.6
8	62.4
9	70.2

80

1	8.0
2	16.0
3	24.0
4	32.0
5	40.0
6	48.0
7	56.0
8	64.0
9	72.0

99

1	9.9
2	19.8
3	29.7
4	39.6
5	49.5
6	59.4
7	69.3
8	79.2
9	89.1

125

1	12.5
2	25.0
3	37.5
4	50.0
5	62.5
6	75.0
7	87.5
8	100.0
9	112.5

51°

38°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.622515		0.795436		1.277779		1.606388		1.257172		0.782608		**30′** 0″
10	2553	38	5515	79	7828	49	6290	98	7047	125	2578	30	50
20	2591	38	5594	79	7877	49	6192	98	6922	125	2548	30	40
30	2628	37	5673	79	7927	50	6094	98	6797	125	2518	30	30
40	2666	38	5753	80	7976	49	5996	98	6672	125	2487	31	20
50	2704	38	5832	79	8025	49	5899	97	6547	125	2457	30	10
31 0	0.622742	38	0.795911	79	1.278074	49	1.605801	98	1.256422	125	0.782427	30	**29** 0
10	2780	38	5990	79	8124	50	5703	98	6297	125	2397	30	50
20	2818	38	6069	79	8173	49	5605	98	6172	125	2367	30	40
30	2856	38	6149	80	8222	49	5507	98	6047	125	2336	31	30
40	2894	38	6228	79	8272	50	5410	97	5922	125	2306	30	20
50	2932	38	6307	79	8321	49	5312	98	5797	125	2276	30	10
32 0	0.622970	38	0.796386	79	1.278370	49	1.605214	98	1.255672	125	0.782246	30	**28** 0
10	3008	38	6465	79	8420	50	5116	98	5547	125	2216	30	50
20	3046	38	6545	80	8469	49	5019	97	5422	125	2185	31	40
30	3084	38	6624	79	8519	50	4921	98	5297	125	2155	30	30
40	3122	38	6703	79	8568	49	4823	98	5173	124	2125	30	20
50	3159	37	6782	79	8617	49	4726	97	5048	125	2095	30	10
33 0	0.623197	38	0.796862	80	1.278667	50	1.604628	98	1.254923	125	0.782065	30	**27** 0
10	3235	38	6941	79	8716	49	4531	97	4798	125	2034	31	50
20	3273	38	7020	79	8766	50	4433	98	4673	125	2004	30	40
30	3311	38	7100	80	8815	49	4335	98	4548	125	1974	30	30
40	3349	38	7179	79	8864	49	4238	97	4424	124	1944	30	20
50	3387	38	7258	79	8914	50	4140	98	4299	125	1914	30	10
34 0	0.623425	38	0.797337	79	1.278963	49	1.604043	97	1.254174	125	0.781883	31	**26** 0
10	3463	38	7417	80	9013	50	3945	98	4049	125	1853	30	50
20	3501	38	7496	79	9062	49	3848	97	3925	124	1823	30	40
30	3539	38	7575	79	9112	50	3750	98	3800	125	1793	30	30
40	3576	37	7655	80	9161	49	3653	97	3675	125	1762	31	20
50	3614	38	7734	79	9211	50	3555	98	3551	124	1732	30	10
35 0	0.623652	38	0.797813	79	1.279260	49	1.603458	97	1.253426	125	0.781702	30	**25** 0
10	3690	38	7893	80	9309	49	3360	98	3301	125	1672	30	50
20	3728	38	7972	79	9359	50	3263	97	3177	124	1641	31	40
30	3766	38	8051	79	9408	49	3165	98	3052	125	1611	30	30
40	3804	38	8131	80	9458	50	3068	97	2928	124	1581	30	20
50	3842	38	8210	79	9507	49	2971	97	2803	125	1551	30	10
36 0	0.623880	38	0.798290	80	1.279557	50	1.602873	98	1.252678	125	0.781520	31	**24** 0
10	3917	37	8369	79	9607	50	2776	97	2554	124	1490	30	50
20	3955	38	8448	79	9656	49	2679	97	2429	125	1460	30	40
30	3993	38	8528	80	9706	50	2581	98	2305	124	1430	30	30
40	4031	38	8607	79	9755	49	2484	97	2180	125	1399	31	20
50	4069	38	8686	79	9805	50	2387	97	2056	124	1369	30	10
37 0	0.624107	38	0.798766	80	1.279854	49	1.602290	97	1.251931	125	0.781339	30	**23** 0
10	4145	38	8845	79	9904	50	2192	98	1807	124	1309	30	50
20	4183	38	8925	80	1.279953	49	2095	97	1682	125	1278	31	40
30	4221	38	9004	79	1.280003	50	1998	97	1558	124	1248	30	30
40	4258	37	9084	80	0053	50	1901	97	1434	124	1218	30	20
50	4296	38	9163	79	0102	49	1804	97	1309	125	1188	30	10
38 0	0.624334	38	0.799242	79	1.280152	50	1.601706	98	1.251185	124	0.781157	31	**22** 0
10	4372	38	9322	80	0201	49	1609	97	1060	125	1127	30	50
20	4410	38	9401	79	0251	50	1512	97	0936	124	1097	30	40
30	4448	38	9481	80	0301	50	1415	97	0812	124	1067	30	30
40	4486	38	9560	79	0350	49	1318	97	0687	125	1036	31	20
50	4524	38	9640	80	0400	50	1221	97	0563	124	1006	30	10
39 0	0.624561	37	0.799719	79	1.280450	50	1.601124	97	1.250439	124	0.780976	30	**21** 0
10	4599	38	9799	80	0499	49	1027	97	0314	125	0945	31	50
20	4637	38	9878	79	0549	50	0930	97	0190	124	0915	30	40
30	4675	38	0.799958	80	0598	49	0833	97	1.250066	124	0885	30	30
40	4713	38	0.800037	79	0648	50	0736	97	1.249942	124	0855	30	20
50	4751	38	0117	80	0698	50	0639	97	9818	124	0824	31	10
40 0	0.624789	38	0.800196	79	1.280748	50	1.600542	97	1.249693	125	0.780794	30	**20** 0
	cos		cotg		cosec		sec		tang		sin		

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

48	
1	4.8
2	9.6
3	14.4
4	19.2
5	24.0
6	28.8
7	33.6
8	38.4
9	43.2

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

79	
1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

97	
1	9.7
2	19.4
3	29.1
4	38.8
5	48.5
6	58.2
7	67.9
8	77.6
9	87.3

124	
1	12.4
2	24.8
3	37.2
4	49.6
5	62.0
6	74.4
7	86.8
8	99.2
9	111.6

126	
1	12.6
2	25.2
3	37.8
4	50.4
5	63.0
6	75.6
7	88.2
8	100.8
9	113.4

51°

38°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.624789		0.800196		1.280748		1.600542		1.249693		0.780794		**20′** 0″
10	4826	37	0276	80	0797	49	0445	97	9569	124	0764	30	50
20	4864	38	0355	79	0847	50	0348	97	9445	124	0733	31	40
30	4902	38	0435	80	0897	50	0251	97	9321	124	0703	30	30
40	4940	38	0514	79	0946	49	0154	97	9197	124	0673	30	20
50	4978	38	0594	80	0996	50	1.600057	97	9073	124	0643	30	10
41 0	0.625016	38	0.800674	80	1.281046	50	1.599960	97	1.248948	125	0.780612	31	**19** 0
10	5053	37	0753	79	1095	49	9863	97	8824	124	0582	30	50
20	5091	38	0833	80	1145	50	9766	97	8700	124	0552	30	40
30	5129	38	0912	79	1195	50	9669	97	8576	124	0521	31	30
40	5167	38	0992	80	1245	50	9573	96	8452	124	0491	30	20
50	5205	38	1071	79	1294	49	9476	97	8328	124	0461	30	10
42 0	0.625243	38	0.801151	80	1.281344	50	1.599379	97	1.248204	124	0.780430	31	**18** 0
10	5280	37	1231	80	1394	50	9282	97	8080	124	0400	30	50
20	5318	38	1310	79	1444	50	9186	96	7956	124	0370	30	40
30	5356	38	1390	80	1494	50	9089	97	7832	124	0339	31	30
40	5394	38	1470	80	1543	49	8992	97	7708	124	0309	30	20
50	5432	38	1549	79	1593	50	8895	97	7584	124	0279	30	10
43 0	0.625470	38	0.801629	80	1.281643	50	1.598799	96	1.247460	124	0.780248	31	**17** 0
10	5507	37	1708	79	1693	50	8702	97	7336	124	0218	30	50
20	5545	38	1788	80	1743	50	8605	97	7212	124	0188	30	40
30	5583	38	1868	80	1792	49	8509	96	7088	124	0158	30	30
40	5621	38	1947	79	1842	50	8412	97	6965	123	0127	31	20
50	5659	38	2027	80	1892	50	8315	97	6841	124	0097	30	10
44 0	0.625697	38	0.802107	80	1.281942	50	1.598219	96	1.246717	124	0.780067	30	**16** 0
10	5734	37	2186	79	1992	50	8122	97	6593	124	0036	31	50
20	5772	38	2266	80	2042	50	8026	96	6469	124	0.780006	30	40
30	5810	38	2346	80	2092	50	7929	97	6345	124	0.779976	30	30
40	5848	38	2425	79	2141	49	7832	97	6222	123	9945	31	20
50	5886	38	2505	80	2191	50	7736	96	6098	124	9915	30	10
45 0	0.625923	37	0.802585	80	1.282241	50	1.597639	97	1.245974	124	0.779884	31	**15** 0
10	5961	38	2665	80	2291	50	7543	96	5850	124	9854	30	50
20	5999	38	2744	79	2341	50	7446	97	5727	123	9824	30	40
30	6037	38	2824	80	2391	50	7350	96	5603	124	9793	31	30
40	6075	38	2904	80	2441	50	7253	97	5479	124	9763	30	20
50	6113	38	2983	79	2491	50	7157	96	5356	123	9733	30	10
46 0	0.626150	37	0.803063	80	1.282541	50	1.597061	96	1.245232	124	0.779702	31	**14** 0
10	6188	38	3143	80	2591	50	6964	97	5108	124	9672	30	50
20	6226	38	3223	80	2641	50	6868	96	4985	123	9642	30	40
30	6264	38	3302	79	2690	49	6771	97	4861	124	9611	31	30
40	6301	37	3382	80	2740	50	6675	96	4737	124	9581	30	20
50	6339	38	3462	80	2790	50	6579	96	4614	123	9551	30	10
47 0	0.626377	38	0.803542	80	1.282840	50	1.596482	97	1.244490	124	0.779520	31	**13** 0
10	6415	38	3622	80	2890	50	6386	96	4367	123	9490	30	50
20	6453	38	3701	79	2940	50	6290	96	4243	124	9459	31	40
30	6490	37	3781	80	2990	50	6194	96	4120	123	9429	30	30
40	6528	38	3861	80	3040	50	6097	97	3996	124	9399	30	20
50	6566	38	3941	80	3090	50	6001	96	3873	123	9368	31	10
48 0	0.626604	38	0.804021	80	1.283140	50	1.595905	96	1.243749	124	0.779338	30	**12** 0
10	6642	38	4100	79	3190	50	5809	96	3626	123	9308	30	50
20	6679	37	4180	80	3240	50	5712	97	3502	124	9277	31	40
30	6717	38	4260	80	3290	50	5616	96	3379	123	9247	30	30
40	6755	38	4340	80	3340	50	5520	96	3255	124	9216	31	20
50	6793	38	4420	80	3391	51	5424	96	3132	123	9186	30	10
49 0	0.626830	37	0.804500	80	1.283441	50	1.595328	96	1.243009	123	0.779156	30	**11** 0
10	6868	38	4580	80	3491	50	5232	96	2885	124	9125	31	50
20	6906	38	4659	79	3541	50	5135	97	2762	123	9095	30	40
30	6944	38	4739	80	3591	50	5039	96	2638	124	9064	31	30
40	6982	38	4819	80	3641	50	4943	96	2515	123	9034	30	20
50	7019	37	4899	80	3691	50	4847	96	2392	123	9004	30	10
50 0	0.627057	38	0.804979	80	1.283741	50	1.594751	96	1.242268	124	0.778973	31	**10** 0
	cos		cotg		cosec		sec		tang		sin		

30

1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

37

1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

49

1	4.9
2	9.8
3	14.7
4	19.6
5	24.5
6	29.4
7	34.3
8	39.2
9	44.1

51

1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

80

1	8.0
2	16.0
3	24.0
4	32.0
5	40.0
6	48.0
7	56.0
8	64.0
9	72.0

95

1	9.5
2	19.0
3	28.5
4	38.0
5	47.5
6	57.0
7	66.5
8	76.0
9	85.5

122

1	12.2
2	24.4
3	36.6
4	48.8
5	61.0
6	73.2
7	85.4
8	97.6
9	109.8

124

1	12.4
2	24.8
3	37.2
4	49.6
5	62.0
6	74.4
7	86.8
8	99.2
9	111.6

51°

38°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.627057		0.804979		1.283741		1.594751		1.242268		0.778973		**10′** 0″
10	7095	38	5059	80	3791	50	4655	96	2145	123	8943	30	50
20	7133	38	5139	80	3841	50	4559	96	2022	123	8912	31	40
30	7170	37	5219	80	3891	50	4463	96	1899	123	8882	30	30
40	7208	38	5299	80	3942	51	4367	96	1775	124	8852	30	20
50	7246	38	5379	80	3992	50	4271	96	1652	123	8821	31	10
51 0	0.627284	38	0.805458	79	1.284042	50	1.594175	96	1.241529	123	0.778791	30	**9** 0
10	7321	37	5538	80	4092	50	4079	96	1406	123	8760	31	50
20	7359	38	5618	80	4142	50	3983	96	1283	123	8730	30	40
30	7397	38	5698	80	4192	50	3887	96	1159	124	8700	30	30
40	7435	38	5778	80	4242	50	3791	96	1036	123	8669	31	20
50	7472	37	5858	80	4293	51	3695	96	0913	123	8639	30	10
52 0	0.627510	38	0.805938	80	1.284343	50	1.593600	95	1.240790	123	0.778608	31	**8** 0
10	7548	38	6018	80	4393	50	3504	96	0667	123	8578	30	50
20	7586	38	6098	80	4443	50	3408	96	0544	123	8548	30	40
30	7623	37	6178	80	4493	50	3312	96	0421	123	8517	31	30
40	7661	38	6258	80	4544	51	3216	96	0298	123	8487	30	20
50	7699	38	6338	80	4594	50	3120	96	0175	123	8456	31	10
53 0	0.627737	38	0.806418	80	1.284644	50	1.593025	95	1.240052	123	0.778426	30	**7** 0
10	7774	37	6498	80	4694	50	2929	96	1.239928	124	8395	31	50
20	7812	38	6578	80	4744	50	2833	96	9805	123	8365	30	40
30	7850	38	6658	80	4795	51	2737	96	9682	123	8334	31	30
40	7888	38	6738	80	4845	50	2642	95	9560	122	8304	30	20
50	7925	37	6818	80	4895	50	2546	96	9437	123	8274	30	10
54 0	0.627963	38	0.806898	80	1.284945	50	1.592450	96	1.239314	123	0.778243	31	**6** 0
10	8001	38	6978	80	4996	51	2355	95	9191	123	8213	30	50
20	8039	38	7058	80	5046	50	2259	96	9068	123	8182	31	40
30	8076	37	7138	80	5096	50	2163	96	8945	123	8152	30	30
40	8114	38	7219	81	5147	51	2068	95	8822	123	8121	31	20
50	8152	38	7299	80	5197	50	1972	96	8699	123	8091	30	10
55 0	0.628189	37	0.807379	80	1.285247	50	1.591877	95	1.238576	123	0.778060	31	**5** 0
10	8227	38	7459	80	5297	50	1781	96	8453	123	8030	30	50
20	8265	38	7539	80	5348	51	1685	96	8331	122	8000	30	40
30	8303	38	7619	80	5398	50	1590	95	8208	123	7969	31	30
40	8340	37	7699	80	5448	50	1494	96	8085	123	7939	30	20
50	8378	38	7779	80	5499	51	1399	95	7962	123	7908	31	10
56 0	0.628416	38	0.807859	80	1.285549	50	1.591303	96	1.237839	123	0.777878	30	**4** 0
10	8453	37	7939	80	5600	51	1208	95	7717	122	7847	31	50
20	8491	38	8020	81	5650	50	1112	96	7594	123	7817	30	40
30	8529	38	8100	80	5700	50	1017	95	7471	123	7786	31	30
40	8567	38	8180	80	5751	51	0921	96	7348	123	7756	30	20
50	8604	37	8260	80	5801	50	0826	95	7226	122	7725	31	10
57 0	0.628642	38	0.808340	80	1.285851	50	1.590731	95	1.237103	123	0.777695	30	**3** 0
10	8680	38	8420	80	5902	51	0635	96	6980	123	7664	31	50
20	8717	37	8500	80	5952	50	0540	95	6858	122	7634	30	40
30	8755	38	8581	81	6003	51	0444	96	6735	123	7603	31	30
40	8793	38	8661	80	6053	50	0349	95	6612	123	7573	30	20
50	8830	37	8741	80	6103	50	0254	95	6490	122	7542	31	10
58 0	0.628868	38	0.808821	80	1.286154	51	1.590158	96	1.236367	123	0.777512	30	**2** 0
10	8906	38	8901	80	6204	50	1.590063	95	6245	122	7481	31	50
20	8944	38	8982	81	6255	51	1.589968	95	6122	123	7451	30	40
30	8981	37	9062	80	6305	50	9873	95	5999	123	7420	31	30
40	9019	38	9142	80	6356	51	9777	96	5877	122	7390	30	20
50	9057	38	9222	80	6406	50	9682	95	5754	123	7359	31	10
59 0	0.629094	37	0.809303	81	1.286457	51	1.589587	95	1.235632	122	0.777329	30	**1** 0
10	9132	38	9383	80	6507	50	9492	95	5509	123	7298	31	50
20	9170	38	9463	80	6558	51	9396	96	5387	122	7268	30	40
30	9207	37	9543	80	6608	50	9301	95	5264	123	7237	31	30
40	9245	38	9623	80	6659	51	9206	95	5142	122	7207	30	20
50	9283	38	9704	81	6709	50	9111	95	5020	122	7176	31	10
60 0	0.629320	37	0.809784	80	1.286760	51	1.589016	95	1.234897	123	0.777146	30	**0** 0
	cos		cotg		cosec		sec		tang		sin		

31		38		50		79		81		97		123		125	
1	3.1	1	3.8	1	5.0	1	7.9	1	8.1	1	9.7	1	12.3	1	12.5
2	6.2	2	7.6	2	10.0	2	15.8	2	16.2	2	19.4	2	24.6	2	25.0
3	9.3	3	11.4	3	15.0	3	23.7	3	24.3	3	29.1	3	36.9	3	37.5
4	12.4	4	15.2	4	20.0	4	31.6	4	32.4	4	38.8	4	49.2	4	50.0
5	15.5	5	19.0	5	25.0	5	39.5	5	40.5	5	48.5	5	61.5	5	62.5
6	18.6	6	22.8	6	30.0	6	47.4	6	48.6	6	58.2	6	73.8	6	75.0
7	21.7	7	26.6	7	35.0	7	55.3	7	56.7	7	67.9	7	86.1	7	87.5
8	24.8	8	30.4	8	40.0	8	63.2	8	64.8	8	77.6	8	98.4	8	100.0
9	27.9	9	34.2	9	45.0	9	71.1	9	72.9	9	87.3	9	110.7	9	112.5

51°

39°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.629320		0.809784		1.286760		1.589016		1.234897		0.777146		**60′** 0″
10	9358	38	9864	80	6810	50	8921	95	4775	122	7115	31	50
20	9396	38	0.809945	81	6861	51	8825	96	4652	123	7085	30	40
30	9433	37	0.810025	80	6911	50	8730	95	4530	122	7054	31	30
40	9471	38	0105	80	6962	51	8635	95	4408	122	7024	30	20
50	9509	38	0185	80	7012	50	8540	95	4285	123	6993	31	10
1 0	0.629546	37	0.810266	81	1.287063	51	1.588445	95	1.234163	122	0.776963	30	**59** 0
10	9584	38	0346	80	7113	50	8350	95	4041	122	6932	31	50
20	9622	38	0426	80	7164	51	8255	95	3918	123	6902	30	40
30	9659	37	0507	81	7215	51	8160	95	3796	122	6871	31	30
40	9697	38	0587	80	7265	50	8065	95	3674	122	6841	30	20
50	9735	38	0667	80	7316	51	7970	95	3551	123	6810	31	10
2 0	0.629772	37	0.810748	81	1.287366	50	1.587875	95	1.233429	122	0.776780	30	**58** 0
10	9810	38	0828	80	7417	51	7780	95	3307	122	6749	31	50
20	9848	38	0908	80	7467	50	7685	95	3185	122	6719	30	40
30	9885	37	0989	81	7518	51	7590	95	3063	122	6688	31	30
40	9923	38	1069	80	7569	51	7496	94	2940	123	6658	30	20
50	9961	38	1150	81	7619	50	7401	95	2818	122	6627	31	10
3 0	0.629998	37	0.811230	80	1.287670	51	1.587306	95	1.232696	122	0.776596	31	**57** 0
10	0.630036	38	1310	80	7721	51	7211	95	2574	122	6566	30	50
20	0074	38	1391	81	7771	50	7116	95	2452	122	6535	31	40
30	0111	37	1471	80	7822	51	7021	95	2330	122	6505	30	30
40	0149	38	1552	81	7873	51	6926	95	2208	122	6474	31	20
50	0187	38	1632	80	7923	50	6832	94	2086	122	6444	30	10
4 0	0.630224	37	0.811712	80	1.287974	51	1.586737	95	1.231963	123	0.776413	31	**56** 0
10	0262	38	1793	81	8025	51	6642	95	1841	122	6383	30	50
20	0299	37	1873	80	8075	50	6547	95	1719	122	6352	31	40
30	0337	38	1954	81	8126	51	6453	94	1597	122	6322	30	30
40	0375	38	2034	80	8177	51	6358	95	1475	122	6291	31	20
50	0412	37	2115	81	8228	51	6263	95	1353	122	6260	31	10
5 0	0.630450	38	0.812195	80	1.288278	50	1.586169	94	1.231231	122	0.776230	30	**55** 0
10	0488	38	2276	81	8329	51	6074	95	1109	122	6199	31	50
20	0525	37	2356	80	8380	51	5979	95	0987	122	6169	30	40
30	0563	38	2436	80	8430	50	5885	94	0865	122	6138	31	30
40	0601	38	2517	81	8481	51	5790	95	0744	121	6108	30	20
50	0638	37	2597	80	8532	51	5695	95	0622	122	6077	31	10
6 0	0.630676	38	0.812678	81	1.288583	51	1.585601	94	1.230500	122	0.776046	31	**54** 0
10	0713	37	2758	80	8634	51	5506	95	0378	122	6016	30	50
20	0751	38	2839	81	8684	50	5412	94	0256	122	5985	31	40
30	0789	38	2919	80	8735	51	5317	95	0134	122	5955	30	30
40	0826	37	3000	81	8786	51	5222	95	1.230012	122	5924	31	20
50	0864	38	3081	81	8837	51	5128	94	1.229890	122	5894	30	10
7 0	0.630902	38	0.813161	80	1.288887	50	1.585033	95	1.229769	121	0.775863	31	**53** 0
10	0939	37	3242	81	8938	51	4939	94	9647	122	5832	31	50
20	0977	38	3322	80	8989	51	4844	95	9525	122	5802	30	40
30	1014	37	3403	81	9040	51	4750	94	9403	122	5771	31	30
40	1052	38	3483	80	9091	51	4656	94	9282	121	5741	30	20
50	1090	38	3564	81	9142	51	4561	95	9160	122	5710	31	10
8 0	0.631127	37	0.813644	80	1.289192	50	1.584467	94	1.229038	122	0.775679	31	**52** 0
10	1165	38	3725	81	9243	51	4372	95	8916	122	5649	30	50
20	1202	37	3806	81	9294	51	4278	94	8795	121	5618	31	40
30	1240	38	3886	80	9345	51	4184	94	8673	122	5588	30	30
40	1278	38	3967	81	9396	51	4089	95	8551	122	5557	31	20
50	1315	37	4047	80	9447	51	3995	94	8430	121	5526	31	10
9 0	0.631353	38	0.814128	81	1.289498	51	1.583900	95	1.228308	122	0.775496	30	**51** 0
10	1390	37	4209	81	9549	51	3806	94	8186	122	5465	31	50
20	1428	38	4289	80	9600	51	3712	94	8065	121	5435	30	40
30	1466	38	4370	81	9650	50	3618	94	7943	122	5404	31	30
40	1503	37	4451	81	9701	51	3523	95	7822	121	5373	31	20
50	1541	38	4531	80	9752	51	3429	94	7700	122	5343	30	10
10 0	0.631578	37	0.814612	81	1.289803	51	1.583335	94	1.227579	121	0.775312	31	**50** 0
	cos		cotg		cosec		sec		tang		sin		

30	
1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

37	
1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

50	
1	5.0
2	10.0
3	15.0
4	20.0
5	25.0
6	30.0
7	35.0
8	40.0
9	45.0

52	
1	5.2
2	10.4
3	15.6
4	20.8
5	26.0
6	31.2
7	36.4
8	41.6
9	46.8

81	
1	8.1
2	16.2
3	24.3
4	32.4
5	40.5
6	48.6
7	56.7
8	64.8
9	72.9

93	
1	9.3
2	18.6
3	27.9
4	37.2
5	46.5
6	55.8
7	65.1
8	74.4
9	83.7

96	
1	9.6
2	19.2
3	28.8
4	38.4
5	48.0
6	57.6
7	67.2
8	76.8
9	86.4

122	
1	12.2
2	24.4
3	36.6
4	48.8
5	61.0
6	73.2
7	85.4
8	97.6
9	109.8

50°

39°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.631578		0.814612		1.289803		1.583335		1.227579		0.775312		**50′** 0″
10	1616	38	4692	80	9854	51	3241	94	7457	122	5281	31	50
20	1654	38	4773	81	9905	51	3146	95	7336	121	5251	30	40
30	1691	37	4854	81	1.289956	51	3052	94	7214	122	5220	31	30
40	1729	38	4934	80	1.290007	51	2958	94	7093	121	5190	30	20
50	1766	37	5015	81	0058	51	2864	94	6971	122	5159	31	10
11 0	0.631804	38	0.815096	81	1.290109	51	1.582770	94	1.226850	121	0.775128	31	**49** 0
10	1841	37	5177	81	0160	51	2676	94	6728	122	5098	30	50
20	1879	38	5257	80	0211	51	2581	95	6607	121	5067	31	40
30	1917	38	5338	81	0262	51	2487	94	6485	122	5036	31	30
40	1954	37	5419	81	0313	51	2393	94	6364	121	5006	30	20
50	1992	38	5499	80	0364	51	2299	94	6243	121	4975	31	10
12 0	0.632029	37	0.815580	81	1.290415	51	1.582205	94	1.226121	122	0.774944	31	**48** 0
10	2067	38	5661	81	0466	51	2111	94	6000	121	4914	30	50
20	2104	37	5742	81	0517	51	2017	94	5878	122	4883	31	40
30	2142	38	5822	80	0568	51	1923	94	5757	121	4853	30	30
40	2180	38	5903	81	0619	51	1829	94	5636	121	4822	31	20
50	2217	37	5984	81	0670	51	1735	94	5514	122	4791	31	10
13 0	0.632255	38	0.816065	80	1.290721	51	1.581641	94	1.225393	121	0.774761	30	**47** 0
10	2292	37	6145	81	0772	51	1547	94	5272	121	4730	31	50
20	2330	38	6226	81	0823	51	1453	94	5151	121	4699	31	40
30	2367	37	6307	81	0875	52	1359	94	5029	122	4669	30	30
40	2405	38	6388	81	0926	51	1265	94	4908	121	4638	31	20
50	2442	37	6469	81	0977	51	1171	94	4787	121	4607	31	10
14 0	0.632480	38	0.816549	80	1.291028	51	1.581078	93	1.224666	121	0.774577	30	**46** 0
10	2518	38	6630	81	1079	51	0984	94	4545	121	4546	31	50
20	2555	37	6711	81	1130	51	0890	94	4423	122	4515	31	40
30	2593	38	6792	81	1181	51	0796	94	4302	121	4485	30	30
40	2630	37	6873	81	1232	51	0702	94	4181	121	4454	31	20
50	2668	38	6953	80	1283	51	0608	94	4060	121	4423	31	10
15 0	0.632705	37	0.817034	81	1.291335	52	1.580515	93	1.223939	121	0.774393	30	**45** 0
10	2743	38	7115	81	1386	51	0421	94	3818	121	4362	31	50
20	2780	37	7196	81	1437	51	0327	94	3697	121	4331	31	40
30	2818	38	7277	81	1488	51	0233	94	3576	121	4301	30	30
40	2855	37	7358	81	1539	51	0140	93	3455	121	4270	31	20
50	2893	38	7439	81	1590	51	1.580046	94	3334	121	4239	31	10
16 0	0.632931	38	0.817519	80	1.291642	52	1.579952	94	1.223212	122	0.774209	30	**44** 0
10	2968	37	7600	81	1693	51	9858	94	3091	121	4178	31	50
20	3006	38	7681	81	1744	51	9765	93	2970	121	4147	31	40
30	3043	37	7762	81	1795	51	9671	94	2849	121	4117	30	30
40	3081	38	7843	81	1846	51	9577	94	2729	120	4086	31	20
50	3118	37	7924	81	1898	52	9484	93	2608	121	4055	31	10
17 0	0.633156	38	0.818005	81	1.291949	51	1.579390	94	1.222487	121	0.774024	31	**43** 0
10	3193	37	8086	81	2000	51	9297	93	2366	121	3994	30	50
20	3231	38	8167	81	2051	51	9203	94	2245	121	3963	31	40
30	3268	37	8248	81	2103	52	9109	94	2124	121	3932	31	30
40	3306	38	8329	81	2154	51	9016	93	2003	121	3902	30	20
50	3343	37	8410	81	2205	51	8922	94	1882	121	3871	31	10
18 0	0.633381	38	0.818491	81	1.292256	51	1.578829	93	1.221761	121	0.773840	31	**42** 0
10	3418	37	8571	80	2308	52	8735	94	1640	121	3810	30	50
20	3456	38	8652	81	2359	51	8642	93	1520	120	3779	31	40
30	3493	37	8733	81	2410	51	8548	94	1399	121	3748	31	30
40	3531	38	8814	81	2462	52	8455	93	1278	121	3717	31	20
50	3568	37	8895	81	2513	51	8361	94	1157	121	3687	30	10
19 0	0.633606	38	0.818976	81	1.292564	51	1.578268	93	1.221036	121	0.773656	31	**41** 0
10	3643	37	9057	81	2616	52	8175	93	0916	120	3625	31	50
20	3681	38	9138	81	2667	51	8081	94	0795	121	3594	31	40
30	3718	37	9219	81	2718	51	7988	93	0674	121	3564	30	30
40	3756	38	9300	81	2770	52	7894	94	0553	121	3533	31	20
50	3793	37	9381	81	2821	51	7801	93	0433	120	3502	31	10
20 0	0.633831	38	0.819463	82	1.292872	51	1.577708	93	1.220312	121	0.773472	30	**40** 0
	cos		cotg		cosec		sec		tang		sin		

31		38		51		80		82		94		120		123	
1	3.1	1	3.8	1	5.1	1	8.0	1	8.2	1	9.4	1	12.0	1	12.3
2	6.2	2	7.6	2	10.2	2	16.0	2	16.4	2	18.8	2	24.0	2	24.6
3	9.3	3	11.4	3	15.3	3	24.0	3	24.6	3	28.2	3	36.0	3	36.9
4	12.4	4	15.2	4	20.4	4	32.0	4	32.8	4	37.6	4	48.0	4	49.2
5	15.5	5	19.0	5	25.5	5	40.0	5	41.0	5	47.0	5	60.0	5	61.5
6	18.6	6	22.8	6	30.6	6	48.0	6	49.2	6	56.4	6	72.0	6	73.8
7	21.7	7	26.6	7	35.7	7	56.0	7	57.4	7	65.8	7	84.0	7	86.1
8	24.8	8	30.4	8	40.8	8	64.0	8	65.6	8	75.2	8	96.0	8	98.4
9	27.9	9	34.2	9	45.9	9	72.0	9	73.8	9	84.6	9	108.0	9	110.7

50°

39°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.633831		0.819463		1.292872		1.577708		1.220312		0.773472		**40′** 0″
10	3868	37	9544	81	2924	52	7614	94	0191	121	3441	31	50
20	3906	38	9625	81	2975	51	7521	93	1.220071	120	3410	31	40
30	3943	37	9706	81	3026	51	7428	93	1.219950	121	3379	31	30
40	3981	38	9787	81	3078	52	7334	94	9829	121	3349	30	20
50	4018	37	9868	81	3129	51	7241	93	9709	120	3318	31	10
21 0	0.634056	38	0.819949	81	1.293181	52	1.577148	93	1.219588	121	0.773287	31	**39** 0
10	4093	37	0.820030	81	3232	51	7055	93	9468	120	3256	31	50
20	4131	38	0111	81	3283	51	6961	94	9347	121	3226	30	40
30	4168	37	0192	81	3335	52	6868	93	9227	120	3195	31	30
40	4206	38	0273	81	3386	51	6775	93	9106	121	3164	31	20
50	4243	37	0354	81	3438	52	6682	93	8985	121	3133	31	10
22 0	0.634281	38	0.820435	81	1.293489	51	1.576589	93	1.218865	120	0.773103	30	**38** 0
10	4318	37	0517	82	3541	52	6496	93	8744	121	3072	31	50
20	4356	38	0598	81	3592	51	6402	94	8624	120	3041	31	40
30	4393	37	0679	81	3644	52	6309	93	8504	120	3010	31	30
40	4431	38	0760	81	3695	51	6216	93	8383	121	2980	30	20
50	4468	37	0841	81	3747	52	6123	93	8263	120	2949	31	10
23 0	0.634506	38	0.820922	81	1.293798	51	1.576030	93	1.218142	121	0.772918	31	**37** 0
10	4543	37	1003	82	3850	52	5937	93	8022	120	2887	31	50
20	4581	38	1085	81	3901	51	5844	93	7901	121	2857	30	40
30	4618	37	1166	81	3953	52	5751	93	7781	120	2826	31	30
40	4656	38	1247	81	4004	51	5658	93	7661	120	2795	31	20
50	4693	37	1328	81	4056	52	5565	93	7540	121	2764	31	10
24 0	0.634731	38	0.821409	81	1.294107	51	1.575472	93	1.217420	120	0.772734	30	**36** 0
10	4768	37	1490	82	4159	52	5379	93	7300	120	2703	31	50
20	4805	37	1572	81	4210	51	5286	93	7179	121	2672	31	40
30	4843	38	1653	81	4262	52	5193	93	7059	120	2641	31	30
40	4880	37	1734	81	4313	51	5100	93	6939	120	2610	31	20
50	4918	38	1815	82	4365	52	5007	93	6818	121	2580	30	10
25 0	0.634955	37	0.821897	81	1.294416	51	1.574914	93	1.216698	120	0.772549	31	**35** 0
10	4993	38	1978	81	4468	52	4821	93	6578	120	2518	31	50
20	5030	37	2059	81	4520	52	4728	93	6458	120	2487	31	40
30	5068	38	2140	82	4571	51	4635	93	6337	121	2457	30	30
40	5105	37	2222	81	4623	52	4543	92	6217	120	2426	31	20
50	5143	38	2303	81	4674	51	4450	93	6097	120	2395	31	10
26 0	0.635180	37	0.822384	81	1.294726	52	1.574357	93	1.215977	120	0.772364	31	**34** 0
10	5217	37	2465	82	4778	52	4264	93	5857	120	2333	31	50
20	5255	38	2547	81	4829	51	4171	93	5737	120	2303	30	40
30	5292	37	2628	81	4881	52	4079	92	5616	121	2272	31	30
40	5330	38	2709	81	4933	52	3986	93	5496	120	2241	31	20
50	5367	37	2790	82	4984	51	3893	93	5376	120	2210	31	10
27 0	0.635405	38	0.822872	81	1.295036	52	1.573800	93	1.215256	120	0.772179	31	**33** 0
10	5442	37	2953	81	5088	52	3708	92	5136	120	2149	30	50
20	5479	37	3034	82	5139	51	3615	93	5016	120	2118	31	40
30	5517	38	3116	81	5191	52	3522	93	4896	120	2087	31	30
40	5554	37	3197	81	5243	52	3430	92	4776	120	2056	31	20
50	5592	38	3278	82	5294	51	3337	93	4656	120	2025	31	10
28 0	0.635629	37	0.823360	81	1.295346	52	1.573244	93	1.214536	120	0.771995	30	**32** 0
10	5667	38	3441	81	5398	52	3152	92	4416	120	1964	31	50
20	5704	37	3522	82	5449	51	3059	93	4296	120	1933	31	40
30	5741	37	3604	81	5501	52	2966	93	4176	120	1902	31	30
40	5779	38	3685	82	5553	52	2874	92	4056	120	1871	31	20
50	5816	37	3767		5605	52	2781	93	3936	120	1840	31	10
29 0	0.635854	38	0.823848	81	1.295656	51	1.572689	92	1.213816	120	0.771810	30	**31** 0
10	5891	37	3929	81	5708	52	2596	93	3696	120	1779	31	50
20	5929	38	4011	82	5760	52	2504	92	3576	120	1748	31	40
30	5966	37	4092	81	5812	52	2411	93	3457	119	1717	31	30
40	6003	37	4174	82	5863	51	2319	92	3337	120	1686	31	20
50	6041	38	4255	81	5915	52	2226	93	3217	120	1655	31	10
30 0	0.636078	37	0.824336	81	1.295967	52	1.572134	92	1.213097	120	0.771625	30	**30** 0
	cos		cotg		cosec		sec		tang		sin		

30

1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

37

1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

51

1	5.1
2	10.2
3	15.3
4	20.4
5	25.5
6	30.6
7	35.7
8	40.8
9	45.9

53

1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

82

1	8.2
2	16.4
3	24.6
4	32.8
5	41.0
6	49.2
7	57.4
8	65.6
9	73.8

92

1	9.2
2	18.4
3	27.6
4	36.8
5	46.0
6	55.2
7	64.4
8	73.6
9	82.8

94

1	9.4
2	18.8
3	28.2
4	37.6
5	47.0
6	56.4
7	65.8
8	75.2
9	84.6

120

1	12.0
2	24.0
3	36.0
4	48.0
5	60.0
6	72.0
7	84.0
8	96.0
9	108.0

50°

39°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.636078		0.824336		1.295967		1.572134		1.213097		0.771625		**30′** 0″
10	6116	38	4418	82	6019	52	2041	93	2977	120	1594	31	50
20	6153	37	4499	81	6071	52	1949	92	2857	120	1563	31	40
30	6190	37	4581	82	6122	51	1856	93	2738	119	1532	31	30
40	6228	38	4662	81	6174	52	1764	92	2618	120	1501	31	20
50	6265	37	4744	82	6226	52	1672	92	2498	120	1470	31	10
31 0	0.636303	38	0.824825	81	1.296278	52	1.571579	93	1.212378	120	0.771440	30	**29** 0
10	6340	37	4907	82	6330	52	1487	92	2259	119	1409	31	50
20	6377	37	4988	81	6382	52	1394	93	2139	120	1378	31	40
30	6415	38	5069	81	6433	51	1302	92	2019	120	1347	31	30
40	6452	37	5151	82	6485	52	1210	92	1899	120	1316	31	20
50	6490	38	5232	81	6537	52	1117	93	1780	119	1285	31	10
32 0	0.636527	37	0.825314	82	1.296589	52	1.571025	92	1.211660	120	0.771254	31	**28** 0
10	6564	37	5395	81	6641	52	0933	92	1540	120	1224	30	50
20	6602	38	5477	82	6693	52	0841	92	1421	119	1193	31	40
30	6639	37	5559	82	6745	52	0748	93	1301	120	1162	31	30
40	6677	38	5640	81	6797	52	0656	92	1182	119	1131	31	20
50	6714	37	5722	82	6849	52	0564	92	1062	120	1100	31	10
33 0	0.636751	37	0.825803	81	1.296900	51	1.570472	92	1.210942	120	0.771069	31	**27** 0
10	6789	38	5885	82	6952	52	0380	92	0823	119	1038	31	50
20	6826	37	5966	81	7004	52	0287	93	0703	120	1007	31	40
30	6863	37	6048	82	7056	52	0195	92	0584	119	0977	30	30
40	6901	38	6129	81	7108	52	0103	92	0464	120	0946	31	20
50	6938	37	6211	82	7160	52	1.570011	92	0345	119	0915	31	10
34 0	0.636976	38	0.826292	81	1.297212	52	1.569919	92	1.210225	120	0.770884	31	**26** 0
10	7013	37	6374	82	7264	52	9827	92	1.210106	119	0853	31	50
20	7050	37	6456	82	7316	52	9735	92	1.209986	120	0822	31	40
30	7088	38	6537	81	7368	52	9643	92	9867	119	0791	31	30
40	7125	37	6619	82	7420	52	9550	93	9747	120	0760	31	20
50	7162	37	6700	81	7472	52	9458	92	9628	119	0730	30	10
35 0	0.637200	38	0.826782	82	1.297524	52	1.569366	92	1.209509	119	0.770699	31	**25** 0
10	7237	37	6864	82	7576	52	9274	92	9389	120	0668	31	50
20	7275	38	6945	81	7628	52	9182	92	9270	119	0637	31	40
30	7312	37	7027	82	7680	52	9090	92	9150	120	0606	31	30
40	7349	37	7109	82	7732	52	8998	92	9031	119	0575	31	20
50	7387	38	7190	81	7784	52	8906	92	8912	119	0544	31	10
36 0	0.637424	37	0.827272	82	1.297836	52	1.568815	91	1.208792	120	0.770513	31	**24** 0
10	7461	37	7354	82	7888	52	8723	92	8673	119	0482	31	50
20	7499	38	7435	81	7940	52	8631	92	8554	119	0451	31	40
30	7536	37	7517	82	7992	52	8539	92	8434	120	0421	30	30
40	7573	37	7599	82	8044	52	8447	92	8315	119	0390	31	20
50	7611	38	7680	81	8097	53	8355	92	8196	119	0359	31	10
37 0	0.637648	37	0.827762	82	1.298149	52	1.568263	92	1.208077	119	0.770328	31	**23** 0
10	7685	37	7844	82	8201	52	8171	92	7957	120	0297	31	50
20	7723	38	7925	81	8253	52	8079	92	7838	119	0266	31	40
30	7760	37	8007	82	8305	52	7988	91	7719	119	0235	31	30
40	7797	37	8089	82	8357	52	7896	92	7600	119	0204	31	20
50	7835	38	8171	82	8409	52	7804	92	7481	119	0173	31	10
38 0	0.637872	37	0.828252	81	1.298461	52	1.567712	92	1.207362	119	0.770142	31	**22** 0
10	7909	37	8334	82	8514	53	7621	91	7242	120	0111	31	50
20	7947	38	8416	82	8566	52	7529	92	7123	119	0080	31	40
30	7984	37	8498	82	8618	52	7437	92	7004	119	0049	31	30
40	8021	37	8579	81	8670	52	7345	92	6885	119	0.770019	30	20
50	8059	38	8661	82	8722	52	7254	91	6766	119	0.769988	31	10
39 0	0.638096	37	0.828743	82	1.298774	52	1.567162	92	1.206647	119	0.769957	31	**21** 0
10	8133	37	8825	82	8827	53	7070	92	6528	119	9926	31	50
20	8171	38	8906	81	8879	52	6979	91	6409	119	9895	31	40
30	8208	37	8988	82	8931	52	6887	92	6290	119	9864	31	30
40	8245	37	9070	82	8983	52	6795	92	6171	119	9833	31	20
50	8283	38	9152	82	9035	52	6704	91	6052	119	9802	31	10
40 0	0.638320	37	0.829234	82	1.299088	53	1.566612	92	1.205933	119	0.769771	31	**20** 0
	cos		cotg		cosec		sec		tang		sin		

31		38		52		81		91		93		119		121	
1	3.1	1	3.8	1	5.2	1	8.1	1	9.1	1	9.3	1	11.9	1	12.1
2	6.2	2	7.6	2	10.4	2	16.2	2	18.2	2	18.6	2	23.8	2	24.2
3	9.3	3	11.4	3	15.6	3	24.3	3	27.3	3	27.9	3	35.7	3	36.3
4	12.4	4	15.2	4	20.8	4	32.4	4	36.4	4	37.2	4	47.6	4	48.4
5	15.5	5	19.0	5	26.0	5	40.5	5	45.5	5	46.5	5	59.5	5	60.5
6	18.6	6	22.8	6	31.2	6	48.6	6	54.6	6	55.8	6	71.4	6	72.6
7	21.7	7	26.6	7	36.4	7	56.7	7	63.7	7	65.1	7	83.3	7	84.7
8	24.8	8	30.4	8	41.6	8	64.8	8	72.8	8	74.4	8	95.2	8	96.8
9	27.9	9	34.2	9	46.8	9	72.9	9	81.9	9	83.7	9	107.1	9	108.9

50°

39°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.638320		0.829234		1.299088		1.566612		1.205933		0.769771		**20′** 0″
10	8357	37	9316	82	9140	52	6521	91	5814	119	9740	31	50
20	8395	38	9397	81	9192	52	6429	92	5695	119	9709	31	40
30	8432	37	9479	82	9244	52	6337	92	5576	119	9678	31	30
40	8469	37	9561	82	9297	53	6246	91	5457	119	9647	31	20
50	8507	38	9643	82	9349	52	6154	92	5338	119	9616	31	10
41 0	0.638544	37	0.829725	82	1.299401	52	1.566063	91	1.205219	119	0.769585	31	**19** 0
10	8581	37	9807	82	9453	52	5971	92	5100	119	9554	31	50
20	8619	38	9888	81	9506	53	5880	91	4981	119	9523	31	40
30	8656	37	0.829970	82	9558	52	5788	92	4862	119	9492	31	30
40	8693	37	0.830052	82	9610	52	5697	91	4743	119	9461	31	20
50	8731	38	0134	82	9663	53	5605	92	4625	118	9431	30	10
42 0	0.638768	37	0.830216	82	1.299715	52	1.565514	91	1.204506	119	0.769400	31	**18** 0
10	8805	37	0298	82	9767	52	5423	91	4387	119	9369	31	50
20	8842	37	0380	82	9819	52	5331	92	4268	119	9338	31	40
30	8880	38	0462	82	9872	53	5240	91	4149	119	9307	31	30
40	8917	37	0544	82	9924	52	5148	92	4031	118	9276	31	20
50	8954	37	0626	82	1.299976	52	5057	91	3912	119	9245	31	10
43 0	0.638992	38	0.830707	81	1.300029	53	1.564966	91	1.203793	119	0.769214	31	**17** 0
10	9029	37	0789	82	0081	52	4874	92	3674	119	9183	31	50
20	9066	37	0871	82	0134	53	4783	91	3556	118	9152	31	40
30	9103	37	0953	82	0186	52	4692	91	3437	119	9121	31	30
40	9141	38	1035	82	0238	52	4601	91	3318	119	9090	31	20
50	9178	37	1117	82	0291	53	4509	92	3200	118	9059	31	10
44 0	0.639215	37	0.831199	82	1.300343	52	1.564418	91	1.203081	119	0.769028	31	**16** 0
10	9253	38	1281	82	0396	53	4327	91	2962	119	8997	31	50
20	9290	37	1363	82	0448	52	4236	91	2844	118	8966	31	40
30	9327	37	1445	82	0500	52	4144	92	2725	119	8935	31	30
40	9364	37	1527	82	0553	53	4053	91	2606	119	8904	31	20
50	9402	38	1609	82	0605	52	3962	91	2488	118	8873	31	10
45 0	0.639439	37	0.831691	82	1.300658	53	1.563871	91	1.202369	119	0.768842	31	**15** 0
10	9476	37	1773	82	0710	52	3780	91	2251	118	8811	31	50
20	9514	38	1855	82	0763	53	3689	91	2132	119	8780	31	40
30	9551	37	1937	82	0815	52	3597	92	2014	118	8749	31	30
40	9588	37	2019	82	0867	52	3506	91	1895	119	8718	31	20
50	9625	37	2101	82	0920	53	3415	91	1777	118	8687	31	10
46 0	0.639663	38	0.832183	82	1.300972	52	1.563324	91	1.201658	119	0.768656	31	**14** 0
10	9700	37	2265	82	1025	53	3233	91	1540	118	8625	31	50
20	9737	37	2348	83	1077	52	3142	91	1421	119	8594	31	40
30	9774	37	2430	82	1130	53	3051	91	1303	118	8563	31	30
40	9812	38	2512	82	1182	52	2960	91	1184	119	8532	31	20
50	9849	37	2594	82	1235	53	2869	91	1066	118	8501	31	10
47 0	0.639886	37	0.832676	82	1.301287	52	1.562778	91	1.200947	119	0.768470	31	**13** 0
10	9923	37	2758	82	1340	53	2687	91	0829	118	8439	31	50
20	9961	38	2840	82	1393	53	2596	91	0711	118	8408	31	40
30	0.639998	37	2922	82	1445	52	2505	91	0592	119	8377	31	30
40	0.640035	37	3004	82	1498	53	2414	91	0474	118	8346	31	20
50	0072	37	3086	82	1550	52	2323	91	0356	118	8315	31	10
48 0	0.640110	38	0.833169	83	1.301603	53	1.562232	91	1.200237	119	0.768284	31	**12** 0
10	0147	37	3251	82	1655	52	2141	91	0119	118	8252	32	50
20	0184	37	3333	82	1708	53	2050	91	1.200001	118	8221	31	40
30	0221	37	3415	82	1761	53	1960	90	1.199882	119	8190	31	30
40	0259	38	3497	82	1813	52	1869	91	9764	118	8159	31	20
50	0296	37	3579	82	1866	53	1778	91	9646	118	8128	31	10
49 0	0.640333	37	0.833662	83	1.301918	52	1.561687	91	1.199528	118	0.768097	31	**11** 0
10	0370	37	3744	82	1971	53	1596	91	9409	119	8066	31	50
20	0408	38	3826	82	2024	53	1505	91	9291	118	8035	31	40
30	0445	37	3908	82	2076	52	1415	90	9173	118	8004	31	30
40	0482	37	3990	82	2129	53	1324	91	9055	118	7973	31	20
50	0519	37	4072	82	2182	53	1233	91	8937	118	7942	31	10
50 0	0.640557	38	0.834155	83	1.302234	52	1.561142	91	1.198818	119	0.767911	31	**10** 0
	cos		cotg		cosec		sec		tang		sin		

30

1	3.0
2	6.0
3	9.0
4	12.0
5	15.0
6	18.0
7	21.0
8	24.0
9	27.0

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

38

1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

53

1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

82

1	8.2
2	16.4
3	24.6
4	32.8
5	41.0
6	49.2
7	57.4
8	65.6
9	73.8

89

1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

92

1	9.2
2	18.4
3	27.6
4	36.8
5	46.0
6	55.2
7	64.4
8	73.6
9	82.8

118

1	11.8
2	23.6
3	35.4
4	47.2
5	59.0
6	70.8
7	82.6
8	94.4
9	106.2

50°

39°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.640557		0.834155		1.302234		1.561142		1.198818		0.767911		**10′** 0″
10	0594	37	4237	82	2287	53	1052	90	8700	118	7880	31	50
20	0631	37	4319	82	2340	53	0961	91	8582	118	7849	31	40
30	0668	37	4401	82	2392	52	0870	91	8464	118	7818	31	30
40	0705	37	4484	83	2445	53	0780	90	8346	118	7787	31	20
50	0743	38	4566	82	2498	53	0689	91	8228	118	7756	31	10
51 0	0.640780	37	0.834648	82	1.302550	52	1.560598	91	1.198110	118	0.767725	31	**9** 0
10	0817	37	4730	82	2603	53	0508	90	7992	118	7694	31	50
20	0854	37	4813	83	2656	53	0417	91	7874	118	7662	32	40
30	0892	38	4895	82	2709	53	0326	91	7756	118	7631	31	30
40	0929	37	4977	82	2761	52	0236	90	7638	118	7600	31	20
50	0966	37	5059	82	2814	53	0145	91	7520	118	7569	31	10
52 0	0.641003	37	0.835142	83	1.302867	53	1.560055	90	1.197402	118	0.767538	31	**8** 0
10	1040	37	5224	82	2920	53	1.559964	91	7284	118	7507	31	50
20	1078	38	5306	82	2972	52	9874	90	7166	118	7476	31	40
30	1115	37	5389	83	3025	53	9783	91	7048	118	7445	31	30
40	1152	37	5471	82	3078	53	9692	91	6930	118	7414	31	20
50	1189	37	5553	82	3131	53	9602	90	6812	118	7383	31	10
53 0	0.641226	37	0.835636	83	1.303183	52	1.559511	91	1.196694	118	0.767352	31	**7** 0
10	1264	38	5718	82	3236	53	9421	90	6576	118	7321	31	50
20	1301	37	5800	82	3289	53	9331	90	6458	118	7290	31	40
30	1338	37	5883	83	3342	53	9240	91	6340	118	7258	32	30
40	1375	37	5965	82	3395	53	9150	90	6222	118	7227	31	20
50	1412	37	6047	82	3447	52	9059	91	6104	118	7196	31	10
54 0	0.641450	38	0.836130	83	1.303500	53	1.558969	90	1.195987	117	0.767165	31	**6** 0
10	1487	37	6212	82	3553	53	8878	91	5869	118	7134	31	50
20	1524	37	6295	83	3606	53	8788	90	5751	118	7103	31	40
30	1561	37	6377	82	3659	53	8698	90	5633	118	7072	31	30
40	1598	37	6459	82	3712	53	8607	91	5515	118	7041	31	20
50	1636	38	6542	83	3765	53	8517	90	5398	117	7010	31	10
55 0	0.641673	37	0.836624	82	1.303817	52	1.558427	90	1.195280	118	0.766979	31	**5** 0
10	1710	37	6707	83	3870	53	8336	91	5162	118	6947	32	50
20	1747	37	6789	82	3923	53	8246	90	5044	118	6916	31	40
30	1784	37	6871	82	3976	53	8156	90	4927	117	6885	31	30
40	1821	37	6954	83	4029	53	8066	90	4809	118	6854	31	20
50	1859	38	7036	82	4082	53	7975	91	4691	118	6823	31	10
56 0	0.641896	37	0.837119	83	1.304135	53	1.557885	90	1.194574	117	0.766792	31	**4** 0
10	1933	37	7201	82	4188	53	7795	90	4456	118	6761	31	50
20	1970	37	7284	83	4241	53	7705	90	4338	118	6730	31	40
30	2007	37	7366	82	4294	53	7615	90	4221	117	6698	32	30
40	2045	38	7449	83	4347	53	7524	91	4103	118	6667	31	20
50	2082	37	7531	82	4400	53	7434	90	3985	118	6636	31	10
57 0	0.642119	37	0.837614	83	1.304453	53	1.557344	90	1.193868	117	0.766605	31	**3** 0
10	2156	37	7696	82	4506	53	7254	90	3750	118	6574	31	50
20	2193	37	7779	83	4559	53	7164	90	3633	117	6543	31	40
30	2230	37	7861	82	4612	53	7074	90	3515	118	6512	31	30
40	2268	38	7944	83	4665	53	6984	90	3398	117	6481	31	20
50	2305	37	8026	82	4718	53	6894	90	3280	118	6449	32	10
58 0	0.642342	37	0.838109	83	1.304771	53	1.556803	91	1.193163	117	0.766418	31	**2** 0
10	2379	37	8191	82	4824	53	6713	90	3045	118	6387	31	50
20	2416	37	8274	83	4877	53	6623	90	2928	117	6356	31	40
30	2453	37	8356	82	4930	53	6533	90	2810	118	6325	31	30
40	2490	37	8439	83	4983	53	6443	90	2693	117	6294	31	20
50	2528	38	8521	82	5036	53	6353	90	2575	118	6263	31	10
59 0	0.642565	37	0.838604	83	1.305089	53	1.556263	90	1.192458	117	0.766231	32	**1** 0
10	2602	37	8687	83	5142	53	6173	90	2340	118	6200	31	50
20	2639	37	8769	82	5195	53	6083	90	2223	117	6169	31	40
30	2676	37	8852	83	5248	53	5994	89	2106	117	6138	31	30
40	2713	37	8934	82	5301	53	5904	90	1988	118	6107	31	20
50	2750	37	9017	83	5354	53	5814	90	1871	117	6076	31	10
60 0	0.642788	38	0.839100	83	1.305407	53	1.555724	90	1.191754	117	0.766044	32	**0** 0
	cos		cotg		cosec		sec		tang		sin		

31		37		52		81		83		90		117		119	
1	3.1	1	3.7	1	5.2	1	8.1	1	8.3	1	9.0	1	11.7	1	11.9
2	6.2	2	7.4	2	10.4	2	16.2	2	16.6	2	18.0	2	23.4	2	23.8
3	9.3	3	11.1	3	15.6	3	24.3	3	24.9	3	27.0	3	35.1	3	35.7
4	12.4	4	14.8	4	20.8	4	32.4	4	33.2	4	36.0	4	46.8	4	47.6
5	15.5	5	18.5	5	26.0	5	40.5	5	41.5	5	45.0	5	58.5	5	59.5
6	18.6	6	22.2	6	31.2	6	48.6	6	49.8	6	54.0	6	70.2	6	71.4
7	21.7	7	25.9	7	36.4	7	56.7	7	58.1	7	63.0	7	81.9	7	83.3
8	24.8	8	29.6	8	41.6	8	64.8	8	66.4	8	72.0	8	93.6	8	95.2
9	27.9	9	33.3	9	46.8	9	72.9	9	74.7	9	81.0	9	105.3	9	107.1

50°

40°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.642788		0.839100		1.305407		1.555724		1.191754		0.766044		**60′** 0″
10	2825	37	9182	82	5460	53	5634	90	1636	118	6013	31	50
20	2862	37	9265	83	5514	54	5544	90	1519	117	5982	31	40
30	2899	37	9348	83	5567	53	5454	90	1402	117	5951	31	30
40	2936	37	9430	82	5620	53	5364	90	1284	118	5920	31	20
50	2973	37	9513	83	5673	53	5275	89	1167	117	5889	31	10
1 0	0.643010	37	0.839595	82	1.305726	53	1.555185	90	1.191050	117	0.765857	32	**59** 0
10	3048	38	9678	83	5779	53	5095	90	0933	117	5826	31	50
20	3085	37	9761	83	5832	53	5005	90	0815	118	5795	31	40
30	3122	37	9843	82	5886	54	4915	90	0698	117	5764	31	30
40	3159	37	0.839926	83	5939	53	4826	89	0581	117	5733	31	20
50	3196	37	0.840009	83	5992	53	4736	90	0464	117	5702	31	10
2 0	0.643233	37	0.840092	83	1.306045	53	1.554646	90	1.190347	117	0.765670	32	**58** 0
10	3270	37	0174	82	6098	53	4556	90	0229	118	5639	31	50
20	3307	37	0257	83	6151	53	4467	89	1.190112	117	5608	31	40
30	3345	38	0340	83	6205	54	4377	90	1.189995	117	5577	31	30
40	3382	37	0422	82	6258	53	4287	90	9878	117	5546	31	20
50	3419	37	0505	83	6311	53	4198	89	9761	117	5514	32	10
3 0	0.643456	37	0.840588	83	1.306364	53	1.554108	90	1.189644	117	0.765483	31	**57** 0
10	3493	37	0671	83	6418	54	4019	89	9527	117	5452	31	50
20	3530	37	0753	82	6471	53	3929	90	9410	117	5421	31	40
30	3567	37	0836	83	6524	53	3839	90	9292	118	5390	31	30
40	3604	37	0919	83	6577	53	3750	89	9175	117	5358	32	20
50	3641	37	1002	83	6631	54	3660	90	9058	117	5327	31	10
4 0	0.643679	38	0.841084	82	1.306684	53	1.553571	89	1.188941	117	0.765296	31	**56** 0
10	3716	37	1167	83	6737	53	3481	90	8824	117	5265	31	50
20	3753	37	1250	83	6791	54	3392	89	8707	117	5234	31	40
30	3790	37	1333	83	6844	53	3302	90	8590	117	5202	32	30
40	3827	37	1416	83	6897	53	3213	89	8473	117	5171	31	20
50	3864	37	1498	82	6950	53	3123	90	8356	117	5140	31	10
5 0	0.643901	37	0.841581	83	1.307004	54	1.553034	89	1.188240	116	0.765109	31	**55** 0
10	3938	37	1664	83	7057	53	2944	90	8123	117	5078	31	50
20	3975	37	1747	83	7110	53	2855	89	8006	117	5046	32	40
30	4012	37	1830	83	7164	54	2765	90	7889	117	5015	31	30
40	4049	37	1912	82	7217	53	2676	89	7772	117	4984	31	20
50	4087	38	1995	83	7270	53	2586	90	7655	117	4953	31	10
6 0	0.644124	37	0.842078	83	1.307324	54	1.552497	89	1.187538	117	0.764921	32	**54** 0
10	4161	37	2161	83	7377	53	2408	89	7421	117	4890	31	50
20	4198	37	2244	83	7431	54	2318	90	7304	117	4859	31	40
30	4235	37	2327	83	7484	53	2229	89	7188	116	4828	31	30
40	4272	37	2410	83	7537	53	2140	89	7071	117	4796	32	20
50	4309	37	2493	83	7591	54	2050	90	6954	117	4765	31	10
7 0	0.644346	37	0.842575	82	1.307644	53	1.551961	89	1.186837	117	0.764734	31	**53** 0
10	4383	37	2658	83	7698	54	1872	89	6721	116	4703	31	50
20	4420	37	2741	83	7751	53	1782	90	6604	117	4672	31	40
30	4457	37	2824	83	7805	54	1693	89	6487	117	4640	32	30
40	4494	37	2907	83	7858	53	1604	89	6370	117	4609	31	20
50	4531	37	2990	83	7911	53	1515	89	6254	116	4578	31	10
8 0	0.644569	38	0.843073	83	1.307965	54	1.551425	90	1.186137	117	0.764547	31	**52** 0
10	4606	37	3156	83	8018	53	1336	89	6020	117	4515	32	50
20	4643	37	3239	83	8072	54	1247	89	5904	116	4484	31	40
30	4680	37	3322	83	8125	53	1158	89	5787	117	4453	31	30
40	4717	37	3405	83	8179	54	1069	89	5670	117	4422	31	20
50	4754	37	3488	83	8232	53	0980	89	5554	116	4390	32	10
9 0	0.644791	37	0.843571	83	1.308286	54	1.550890	90	1.185437	117	0.764359	31	**51** 0
10	4828	37	3654	83	8339	53	0801	89	5320	117	4328	31	50
20	4865	37	3737	83	8393	54	0712	89	5204	116	4296	32	40
30	4902	37	3820	83	8446	53	0623	89	5087	117	4265	31	30
40	4939	37	3903	83	8500	54	0534	89	4971	116	4234	31	20
50	4976	37	3986	83	8553	53	0445	89	4854	117	4203	31	10
10 0	0.645013	37	0.844069	83	1.308607	54	1.550356	89	1.184738	116	0.764171	32	**50** 0
	cos		cotg		cosec		sec		tang		sin		

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

38	
1	3.8
2	7.6
3	11.4
4	15.2
5	19.0
6	22.8
7	26.6
8	30.4
9	34.2

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

83	
1	8.3
2	16.6
3	24.9
4	33.2
5	41.5
6	49.8
7	58.1
8	66.4
9	74.7

88	
1	8.8
2	17.6
3	26.4
4	35.2
5	44.0
6	52.8
7	61.6
8	70.4
9	79.2

90	
1	9.0
2	18.0
3	27.0
4	36.0
5	45.0
6	54.0
7	63.0
8	72.0
9	81.0

117	
1	11.7
2	23.4
3	35.1
4	46.8
5	58.5
6	70.2
7	81.9
8	93.6
9	105.3

49°

40°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.645013		0.844069		1.308607		1.550356		1.184738		0.764171		**50′** 0″
10	5050	37	4152	83	8660	53	0267	89	4621	117	4140	31	50
20	5087	37	4235	83	8714	54	0178	89	4505	116	4109	31	40
30	5124	37	4318	83	8768	54	0089	89	4388	117	4078	31	30
40	5161	37	4401	83	8821	53	1.550000	89	4272	116	4046	32	20
50	5198	37	4484	83	8875	54	1.549911	89	4155	117	4015	31	10
11 0	0.645235	37	0.844567	83	1.308928	53	1.549822	89	1.184039	116	0.763984	31	**49** 0
10	5273	38	4650	83	8982	54	9733	89	3922	117	3952	32	50
20	5310	37	4733	83	9036	54	9644	89	3806	116	3921	31	40
30	5347	37	4816	83	9089	53	9555	89	3689	117	3890	31	30
40	5384	37	4899	83	9143	54	9466	89	3573	116	3859	31	20
50	5421	37	4982	83	9196	53	9377	89	3457	116	3827	32	10
12 0	0.645458	37	0.845066	84	1.309250	54	1.549288	89	1.183340	117	0.763796	31	**48** 0
10	5495	37	5149	83	9304	54	9199	89	3224	116	3765	31	50
20	5532	37	5232	83	9357	53	9110	89	3107	117	3733	32	40
30	5569	37	5315	83	9411	54	9022	88	2991	116	3702	31	30
40	5606	37	5398	83	9465	54	8933	89	2875	116	3671	31	20
50	5643	37	5481	83	9518	53	8844	89	2759	116	3640	31	10
13 0	0.645680	37	0.845564	83	1.309572	54	1.548755	89	1.182642	117	0.763608	32	**47** 0
10	5717	37	5647	83	9626	54	8666	89	2526	116	3577	31	50
20	5754	37	5731	84	9679	53	8578	88	2410	116	3546	31	40
30	5791	37	5814	83	9733	54	8489	89	2293	117	3514	32	30
40	5828	37	5897	83	9787	54	8400	89	2177	116	3483	31	20
50	5865	37	5980	83	9841	54	8311	89	2061	116	3452	31	10
14 0	0.645902	37	0.846063	83	1.309894	53	1.548223	88	1.181945	116	0.763420	32	**46** 0
10	5939	37	6146	83	1.309948	54	8134	89	1829	116	3389	31	50
20	5976	37	6230	84	1.310002	54	8045	89	1712	117	3358	31	40
30	6013	37	6313	83	0056	54	7957	88	1596	116	3326	32	30
40	6050	37	6396	83	0109	53	7868	89	1480	116	3295	31	20
50	6087	37	6479	83	0163	54	7779	89	1364	116	3264	31	10
15 0	0.646124	37	0.846562	83	1.310217	54	1.547691	88	1.181248	116	0.763232	32	**45** 0
10	6161	37	6646	84	0271	54	7602	89	1132	116	3201	31	50
20	6198	37	6729	83	0324	53	7513	89	1015	117	3170	31	40
30	6235	37	6812	83	0378	54	7425	88	0899	116	3138	32	30
40	6272	37	6895	83	0432	54	7336	89	0783	116	3107	31	20
50	6309	37	6979	84	0486	54	7248	88	0667	116	3076	31	10
16 0	0.646346	37	0.847062	83	1.310540	54	1.547159	89	1.180551	116	0.763044	32	**44** 0
10	6383	37	7145	83	0593	53	7070	89	0435	116	3013	31	50
20	6420	37	7229	84	0647	54	6982	88	0319	116	2982	31	40
30	6457	37	7312	83	0701	54	6893	89	0203	116	2950	32	30
40	6494	37	7395	83	0755	54	6805	88	1.180087	116	2919	31	20
50	6531	37	7478	83	0809	54	6716	89	1.179971	116	2888	31	10
17 0	0.646568	37	0.847562	84	1.310863	54	1.546628	88	1.179855	116	0.762856	32	**43** 0
10	6605	37	7645	83	0916	53	6540	88	9739	116	2825	31	50
20	6642	37	7728	83	0970	54	6451	89	9623	116	2794	31	40
30	6679	37	7812	84	1024	54	6363	88	9507	116	2762	32	30
40	6716	37	7895	83	1078	54	6274	89	9391	116	2731	31	20
50	6753	37	7978	83	1132	54	6186	88	9275	116	2700	31	10
18 0	0.646790	37	0.848062	84	1.311186	54	1.546097	89	1.179160	115	0.762668	32	**42** 0
10	6827	37	8145	83	1240	54	6009	88	9044	116	2637	31	50
20	6864	37	8228	83	1294	54	5921	88	8928	116	2606	31	40
30	6901	37	8312	84	1348	54	5832	89	8812	116	2574	32	30
40	6938	37	8395	83	1402	54	5744	88	8696	116	2543	31	20
50	6975	37	8479	84	1456	54	5656	88	8580	116	2512	31	10
19 0	0.647012	37	0.848562	83	1.311510	54	1.545567	89	1.178464	116	0.762480	32	**41** 0
10	7049	37	8645	83	1564	54	5479	88	8349	115	2449	31	50
20	7086	37	8729	84	1617	53	5391	88	8233	116	2417	32	40
30	7122	36	8812	83	1671	54	5302	89	8117	116	2386	31	30
40	7159	37	8896	84	1725	54	5214	88	8001	116	2355	31	20
50	7196	37	8979	83	1779	54	5126	88	7886	115	2323	32	10
20 0	0.647233	37	0.849062	83	1.311833	54	1.545038	88	1.177770	116	0.762292	31	**40** 0
	cos		cotg		cosec		sec		tang		sin		

32	
1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

37	
1	3.7
2	7.4
3	11.1
4	14.8
5	18.5
6	22.2
7	25.9
8	29.6
9	33.3

53	
1	5.3
2	10.6
3	15.9
4	21.2
5	26.5
6	31.8
7	37.1
8	42.4
9	47.7

82	
1	8.2
2	16.4
3	24.6
4	32.8
5	41.0
6	49.2
7	57.4
8	65.6
9	73.8

84	
1	8.4
2	16.8
3	25.2
4	33.6
5	42.0
6	50.4
7	58.8
8	67.2
9	75.6

89	
1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

115	
1	11.5
2	23.0
3	34.5
4	46.0
5	57.5
6	69.0
7	80.5
8	92.0
9	103.5

118	
1	11.8
2	23.6
3	35.4
4	47.2
5	59.0
6	70.8
7	82.6
8	94.4
9	106.2

49°

40°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.647233		0.849062		1.311833		1.545038		1.177770		0.762292		**40′** 0″
10	7270	37	9146	84	1887	54	4950	88	7654	116	2261	31	50
20	7307	37	9229	83	1941	54	4861	89	7538	116	2229	32	40
30	7344	37	9313	84	1995	54	4773	88	7423	115	2198	31	30
40	7381	37	9396	83	2049	54	4685	88	7307	116	2166	32	20
50	7418	37	9480	84	2104	55	4597	88	7191	116	2135	31	10
21 0	0.647455	37	0.849563	83	1.312158	54	1.544509	88	1.177076	115	0.762104	31	**39** 0
10	7492	37	9647	84	2212	54	4421	88	6960	116	2072	32	50
20	7529	37	9730	83	2266	54	4332	89	6844	116	2041	31	40
30	7566	37	9814	84	2320	54	4244	88	6729	115	2009	32	30
40	7603	37	9897	83	2374	54	4156	88	6613	116	1978	31	20
50	7640	37	0.849981	84	2428	54	4068	88	6498	115	1947	31	10
22 0	0.647677	37	0.850064	83	1.312482	54	1.543980	88	1.176382	116	0.761915	32	**38** 0
10	7714	37	0148	84	2536	54	3892	88	6266	116	1884	31	50
20	7751	37	0231	83	2590	54	3804	88	6151	115	1852	32	40
30	7788	37	0315	84	2644	54	3716	88	6035	116	1821	31	30
40	7824	36	0398	83	2698	54	3628	88	5920	115	1790	31	20
50	7861	37	0482	84	2752	54	3540	88	5804	116	1758	32	10
23 0	0.647898	37	0.850565	83	1.312807	55	1.543452	88	1.175689	115	0.761727	31	**37** 0
10	7935	37	0649	84	2861	54	3364	88	5573	116	1695	32	50
20	7972	37	0732	83	2915	54	3276	88	5458	115	1664	31	40
30	8009	37	0816	84	2969	54	3188	88	5342	116	1633	31	30
40	8046	37	0900	84	3023	54	3100	88	5227	115	1601	32	20
50	8083	37	0983	83	3077	54	3012	88	5111	116	1570	31	10
24 0	0.648120	37	0.851067	84	1.313132	55	1.542924	88	1.174996	115	0.761538	32	**36** 0
10	8157	37	1150	83	3186	54	2836	88	4881	115	1507	31	50
20	8194	37	1234	84	3240	54	2749	87	4765	116	1475	32	40
30	8231	37	1318	84	3294	54	2661	88	4650	115	1444	31	30
40	8268	37	1401	83	3348	54	2573	88	4534	116	1413	31	20
50	8304	36	1485	84	3403	55	2485	88	4419	115	1381	32	10
25 0	0.648341	37	0.851568	83	1.313457	54	1.542397	88	1.174304	115	0.761350	31	**35** 0
10	8378	37	1652	84	3511	54	2309	88	4188	116	1318	32	50
20	8415	37	1736	84	3565	54	2222	87	4073	115	1287	31	40
30	8452	37	1819	83	3620	55	2134	88	3958	115	1255	32	30
40	8489	37	1903	84	3674	54	2046	88	3843	115	1224	31	20
50	8526	37	1987	84	3728	54	1958	88	3727	116	1193	31	10
26 0	0.648563	37	0.852070	83	1.313782	54	1.541871	87	1.173612	115	0.761161	32	**34** 0
10	8600	37	2154	84	3837	55	1783	88	3497	115	1130	31	50
20	8637	37	2238	84	3891	54	1695	88	3381	116	1098	32	40
30	8674	37	2321	83	3945	54	1608	87	3266	115	1067	31	30
40	8710	36	2405	84	3999	54	1520	88	3151	115	1035	32	20
50	8747	37	2489	84	4054	55	1432	88	3036	115	1004	31	10
27 0	0.648784	37	0.852573	84	1.314108	54	1.541345	87	1.172921	115	0.760972	32	**33** 0
10	8821	37	2656	83	4162	54	1257	88	2806	115	0941	31	50
20	8858	37	2740	84	4217	55	1169	88	2690	116	0910	31	40
30	8895	37	2824	84	4271	54	1082	87	2575	115	0878	32	30
40	8932	37	2908	84	4325	54	0994	88	2460	115	0847	31	20
50	8969	37	2991	83	4380	55	0906	88	2345	115	0815	32	10
28 0	0.649006	37	0.853075	84	1.314434	54	1.540819	87	1.172230	115	0.760784	31	**32** 0
10	9042	36	3159	84	4488	54	0731	88	2115	115	0752	32	50
20	9079	37	3243	84	4543	55	0644	87	2000	115	0721	31	40
30	9116	37	3326	83	4597	54	0556	88	1885	115	0689	32	30
40	9153	37	3410	84	4652	55	0469	87	1770	115	0658	31	20
50	9190	37	3494	84	4706	54	0381	88	1654	116	0626	32	10
29 0	0.649227	37	0.853578	84	1.314760	54	1.540294	87	1.171539	115	0.760595	31	**31** 0
10	9264	37	3662	84	4815	55	0206	88	1424	115	0563	32	50
20	9301	37	3745	83	4869	54	0119	87	1309	115	0532	31	40
30	9337	36	3829	84	4924	55	1.540031	88	1194	115	0500	32	30
40	9374	37	3913	84	4978	54	1.539944	87	1079	115	0469	31	20
50	9411	37	3997	84	5033	55	9856	88	0965	114	0437	32	10
30 0	0.649448	37	0.854081	84	1.315087	54	1.539769	87	1.170850	115	0.760406	31	**30** 0
	cos		cotg		cosec		sec		tang		sin		

31

1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

36

1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

54

1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

83

1	8.3
2	16.6
3	24.9
4	33.2
5	41.5
6	49.8
7	58.1
8	66.4
9	74.7

85

1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

87

1	8.7
2	17.4
3	26.1
4	34.8
5	43.5
6	52.2
7	60.9
8	69.6
9	78.3

89

1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

115

1	11.5
2	23.0
3	34.5
4	46.0
5	57.5
6	69.0
7	80.5
8	92.0
9	103.5

49°

40°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.649448		0.854081		1.315087		1.539769		1.170850		0.760406		**30′** 0″
10	9485	37	4165	84	5141	54	9682	87	0735	115	0374	32	50
20	9522	37	4248	83	5196	55	9594	88	0620	115	0343	31	40
30	9559	37	4332	84	5250	54	9507	87	0505	115	0311	32	30
40	9595	36	4416	84	5305	55	9420	87	0390	115	0280	31	20
50	9632	37	4500	84	5359	54	9332	88	0275	115	0249	31	10
31 0	0.649669	37	0.854584	84	1.315414	55	1.539245	87	1.170160	115	0.760217	32	**29** 0
10	9706	37	4668	84	5468	54	9158	87	1.170045	115	0186	31	50
20	9743	37	4752	84	5523	55	9070	88	1.169930	115	0154	32	40
30	9780	37	4836	84	5577	54	8983	87	9816	114	0123	31	30
40	9817	37	4919	83	5632	55	8896	87	9701	115	0091	32	20
50	9853	36	5003	84	5686	54	8808	88	9586	115	0060	31	10
32 0	0.649890	37	0.855087	84	1.315741	55	1.538721	87	1.169471	115	0.760028	32	**28** 0
10	9927	37	5171	84	5796	55	8634	87	9356	115	0.759996	32	50
20	0.649964	37	5255	84	5850	54	8547	87	9242	114	9965	31	40
30	0.650001	37	5339	84	5905	55	8460	87	9127	115	9933	32	30
40	0038	37	5423	84	5959	54	8372	88	9012	115	9902	31	20
50	0075	37	5507	84	6014	55	8285	87	8897	115	9870	32	10
33 0	0.650111	36	0.855591	84	1.316068	54	1.538198	87	1.168783	114	0.759839	31	**27** 0
10	0148	37	5675	84	6123	55	8111	87	8668	115	9807	32	50
20	0185	37	5759	84	6178	55	8024	87	8553	115	9776	31	40
30	0222	37	5843	84	6232	54	7937	87	8439	114	9744	32	30
40	0259	37	5927	84	6287	55	7849	88	8324	115	9713	31	20
50	0296	37	6011	84	6341	54	7762	87	8209	115	9681	32	10
34 0	0.650332	36	0.856095	84	1.316396	55	1.537675	87	1.168095	114	0.759650	31	**26** 0
10	0369	37	6179	84	6451	55	7588	87	7980	115	9618	32	50
20	0406	37	6263	84	6505	54	7501	87	7865	115	9587	31	40
30	0443	37	6347	84	6560	55	7414	87	7751	114	9555	32	30
40	0480	37	6431	84	6615	55	7327	87	7636	115	9524	31	20
50	0517	37	6515	84	6669	54	7240	87	7522	114	9492	32	10
35 0	0.650553	36	0.856599	84	1.316724	55	1.537153	87	1.167407	115	0.759461	31	**25** 0
10	0590	37	6683	84	6779	55	7066	87	7293	114	9429	32	50
20	0627	37	6767	84	6833	54	6979	87	7178	115	9397	32	40
30	0664	37	6851	84	6888	55	6892	87	7064	114	9366	31	30
40	0701	37	6935	84	6943	55	6805	87	6949	115	9334	32	20
50	0737	36	7020	85	6998	55	6718	87	6835	114	9303	31	10
36 0	0.650774	37	0.857104	84	1.317052	54	1.536631	87	1.166720	115	0.759271	32	**24** 0
10	0811	37	7188	84	7107	55	6544	87	6606	114	9240	31	50
20	0848	37	7272	84	7162	55	6457	87	6491	115	9208	32	40
30	0885	37	7356	84	7216	54	6371	86	6377	114	9177	31	30
40	0921	36	7440	84	7271	55	6284	87	6262	115	9145	32	20
50	0958	37	7524	84	7326	55	6197	87	6148	114	9114	31	10
37 0	0.650995	37	0.857608	84	1.317381	55	1.536110	87	1.166033	115	0.759082	32	**23** 0
10	1032	37	7693	85	7436	55	6023	87	5919	114	9050	32	50
20	1069	37	7777	84	7490	54	5936	87	5805	114	9019	31	40
30	1105	36	7861	84	7545	55	5850	86	5690	115	8987	32	30
40	1142	37	7945	84	7600	55	5763	87	5576	114	8956	31	20
50	1179	37	8029	84	7655	55	5676	87	5462	114	8924	32	10
38 0	0.651216	37	0.858113	84	1.317710	55	1.535589	87	1.165347	115	0.758893	31	**22** 0
10	1253	37	8198	85	7764	54	5502	87	5233	114	8861	32	50
20	1289	36	8282	84	7819	55	5416	86	5119	114	8829	32	40
30	1326	37	8366	84	7874	55	5329	87	5004	115	8798	31	30
40	1363	37	8450	84	7929	55	5242	87	4890	114	8766	32	20
50	1400	37	8534	84	7984	55	5156	86	4776	114	8735	31	10
39 0	0.651437	37	0.858619	85	1.318039	55	1.535069	87	1.164662	114	0.758703	32	**21** 0
10	1473	36	8703	84	8093	54	4982	87	4547	115	8672	31	50
20	1510	37	8787	84	8148	55	4896	86	4433	114	8640	32	40
30	1547	37	8871	84	8203	55	4809	87	4319	114	8608	32	30
40	1584	37	8955	84	8258	55	4722	87	4205	114	8577	31	20
50	1620	36	9040	85	8313	55	4636	86	4090	115	8545	32	10
40 0	0.651657	37	0.859124	84	1.318368	55	1.534549	87	1.163976	114	0.758514	31	**20** 0
	cos		cotg		cosec		sec		tang		sin		

32		37		55		84		86		88		114		116	
1	3.2	1	3.7	1	5.5	1	8.4	1	8.6	1	8.8	1	11.4	1	11.6
2	6.4	2	7.4	2	11.0	2	16.8	2	17.2	2	17.6	2	22.8	2	23.2
3	9.6	3	11.1	3	16.5	3	25.2	3	25.8	3	26.4	3	34.2	3	34.8
4	12.8	4	14.8	4	22.0	4	33.6	4	34.4	4	35.2	4	45.6	4	46.4
5	16.0	5	18.5	5	27.5	5	42.0	5	43.0	5	44.0	5	57.0	5	58.0
6	19.2	6	22.2	6	33.0	6	50.4	6	51.6	6	52.8	6	68.4	6	69.6
7	22.4	7	25.9	7	38.5	7	58.8	7	60.2	7	61.6	7	79.8	7	81.2
8	25.6	8	29.6	8	44.0	8	67.2	8	68.8	8	70.4	8	91.2	8	92.8
9	28.8	9	33.3	9	49.5	9	75.6	9	77.4	9	79.2	9	102.6	9	104.4

49°

40°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.651657		0.859124		1.318368		1.534549		1.163976		0.758514		**20′** 0″
10	1694	37	9208	84	8423	55	4462	87	3862	114	8482	32	50
20	1731	37	9293	85	8478	55	4376	86	3748	114	8450	32	40
30	1768	37	9377	84	8533	55	4289	87	3634	114	8419	31	30
40	1804	36	9461	84	8588	55	4203	86	3520	114	8387	32	20
50	1841	37	9545	84	8643	55	4116	87	3406	114	8356	31	10
41 0	0.651878	37	0.859630	85	1.318698	55	1.534030	86	1.163292	114	0.758324	32	**19** 0
10	1915	37	9714	84	8753	55	3943	87	3177	115	8292	32	50
20	1951	36	9798	84	8807	54	3857	86	3063	114	8261	31	40
30	1988	37	9883	85	8862	55	3770	87	2949	114	8229	32	30
40	2025	37	0.859967	84	8917	55	3684	86	2835	114	8198	31	20
50	2062	37	0.860051	84	8972	55	3597	87	2721	114	8166	32	10
42 0	0.652098	36	0.860136	85	1.319027	55	1.533511	86	1.162607	114	0.758134	32	**18** 0
10	2135	37	0220	84	9082	55	3424	87	2493	114	8103	31	50
20	2172	37	0304	84	9137	55	3338	86	2379	114	8071	32	40
30	2209	37	0389	85	9192	55	3252	86	2265	114	8039	32	30
40	2245	36	0473	84	9248	56	3165	87	2151	114	8008	31	20
50	2282	37	0558	85	9303	55	3079	86	2037	114	7976	32	10
43 0	0.652319	37	0.860642	84	1.319358	55	1.532993	86	1.161923	114	0.757945	31	**17** 0
10	2356	37	0726	84	9413	55	2906	87	1809	114	7913	32	50
20	2392	36	0811	85	9468	55	2820	86	1696	113	7881	32	40
30	2429	37	0895	84	9523	55	2734	86	1582	114	7850	31	30
40	2466	37	0980	85	9578	55	2647	87	1468	114	7818	32	20
50	2503	37	1064	84	9633	55	2561	86	1354	114	7786	32	10
44 0	0.652539	36	0.861148	84	1.319688	55	1.532475	86	1.161240	114	0.757755	31	**16** 0
10	2576	37	1233	85	9743	55	2388	87	1126	114	7723	32	50
20	2613	37	1317	84	9798	55	2302	86	1012	114	7692	31	40
30	2650	37	1402	85	9853	55	2216	86	0899	113	7660	32	30
40	2686	36	1486	84	9909	56	2130	86	0785	114	7628	32	20
50	2723	37	1571	85	1.319964	55	2043	87	0671	114	7597	31	10
45 0	0.652760	37	0.861655	84	1.320019	55	1.531957	86	1.160557	114	0.757565	32	**15** 0
10	2796	36	1740	85	0074	55	1871	86	0443	114	7533	32	50
20	2833	37	1824	84	0129	55	1785	86	0330	113	7502	31	40
30	2870	37	1909	85	0184	55	1699	86	0216	114	7470	32	30
40	2907	37	1993	84	0239	55	1613	86	1.160102	114	7438	32	20
50	2943	36	2078	85	0295	56	1526	87	1.159988	114	7407	31	10
46 0	0.652980	37	0.862162	84	1.320350	55	1.531440	86	1.159875	113	0.757375	32	**14** 0
10	3017	37	2247	85	0405	55	1354	86	9761	114	7343	32	50
20	3054	37	2331	84	0460	55	1268	86	9647	114	7312	31	40
30	3090	36	2416	85	0515	55	1182	86	9534	113	7280	32	30
40	3127	37	2500	84	0571	56	1096	86	9420	114	7248	32	20
50	3164	37	2585	85	0626	55	1010	86	9306	114	7217	31	10
47 0	0.653200	36	0.862669	84	1.320681	55	1.530924	86	1.159193	113	0.757185	32	**13** 0
10	3237	37	2754	85	0736	55	0838	86	9079	114	7153	32	50
20	3274	37	2838	84	0792	56	0752	86	8965	114	7122	31	40
30	3310	36	2923	85	0847	55	0666	86	8852	113	7090	32	30
40	3347	37	3008	85	0902	55	0580	86	8738	114	7058	32	20
50	3384	37	3092	84	0957	55	0494	86	8625	113	7027	31	10
48 0	0.653421	37	0.863177	85	1.321013	56	1.530408	86	1.158511	114	0.756995	32	**12** 0
10	3457	36	3261	84	1068	55	0322	86	8398	113	6963	32	50
20	3494	37	3346	85	1123	55	0236	86	8284	114	6932	31	40
30	3531	37	3431	85	1178	55	0150	86	8171	113	6900	32	30
40	3567	36	3515	84	1234	56	1.530064	86	8057	114	6868	32	20
50	3604	37	3600	85	1289	55	1.529978	86	7944	113	6837	31	10
49 0	0.653641	37	0.863685	85	1.321344	55	1.529892	86	1.157830	114	0.756805	32	**11** 0
10	3677	36	3769	84	1400	56	9806	86	7717	113	6773	32	50
20	3714	37	3854	85	1455	55	9721	85	7603	114	6742	31	40
30	3751	37	3939	85	1510	55	9635	86	7490	113	6710	32	30
40	3788	37	4023	84	1566	56	9549	86	7376	114	6678	32	20
50	3824	36	4108	85	1621	55	9463	86	7263	113	6646	32	10
50 0	0.653861	37	0.864193	85	1.321677	56	1.529377	86	1.157149	114	0.756615	31	**10** 0
	cos		cotg		cosec		sec		tang		sin		

31	
1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

54	
1	5.4
2	10.8
3	16.2
4	21.6
5	27.0
6	32.4
7	37.8
8	43.2
9	48.6

56	
1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

85	
1	8.5
2	17.0
3	25.5
4	34.0
5	42.5
6	51.0
7	59.5
8	68.0
9	76.5

87	
1	8.7
2	17.4
3	26.1
4	34.8
5	43.5
6	52.2
7	60.9
8	69.6
9	78.3

113	
1	11.3
2	22.6
3	33.9
4	45.2
5	56.5
6	67.8
7	79.1
8	90.4
9	101.7

114	
1	11.4
2	22.8
3	34.2
4	45.6
5	57.0
6	68.4
7	79.8
8	91.2
9	102.6

49°

40°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.653861		0.864193		1.321677		1.529377		1.157149		0.756615		**10′** 0″
10	3898	37	4277	84	1732	55	9291	86	7036	113	6583	32	50
20	3934	36	4362	85	1787	55	9206	85	6923	113	6551	32	40
30	3971	37	4447	85	1843	56	9120	86	6809	114	6520	31	30
40	4008	37	4531	84	1898	55	9034	86	6696	113	6488	32	20
50	4044	36	4616	85	1953	55	8948	86	6583	113	6456	32	10
51 0	0.654081	37	0.864701	85	1.322009	56	1.528863	85	1.156469	114	0.756425	31	**9** 0
10	4118	37	4786	85	2064	55	8777	86	6356	113	6393	32	50
20	4154	36	4870	84	2120	56	8691	86	6243	113	6361	32	40
30	4191	37	4955	85	2175	55	8606	85	6129	114	6329	32	30
40	4228	37	5040	85	2231	56	8520	86	6016	113	6298	31	20
50	4264	36	5125	85	2286	55	8434	86	5903	113	6266	32	10
52 0	0.654301	37	0.865209	84	1.322342	56	1.528349	85	1.155790	113	0.756234	32	**8** 0
10	4338	37	5294	85	2397	55	8263	86	5676	114	6203	31	50
20	4374	36	5379	85	2453	56	8177	86	5563	113	6171	32	40
30	4411	37	5464	85	2508	55	8092	85	5450	113	6139	32	30
40	4448	37	5549	85	2564	56	8006	86	5337	113	6107	32	20
50	4484	36	5633	84	2619	55	7921	85	5224	113	6076	31	10
53 0	0.654521	37	0.865718	85	1.322675	56	1.527835	86	1.155110	114	0.756044	32	**7** 0
10	4558	37	5803	85	2730	55	7749	86	4997	113	6012	32	50
20	4594	36	5888	85	2786	56	7664	85	4884	113	5980	32	40
30	4631	37	5973	84	2841	55	7578	86	4771	113	5949	31	30
40	4668	37	6057	85	2897	56	7493	85	4658	113	5917	32	20
50	4704	36	6142	85	2952	55	7407	86	4545	113	5885	32	10
54 0	0.654741	37	0.866227	85	1.323008	56	1.527322	85	1.154432	113	0.755853	32	**6** 0
10	4777	36	6312	85	3063	55	7236	86	4318	114	5822	31	50
20	4814	37	6397	85	3119	56	7151	85	4205	113	5790	32	40
30	4851	37	6482	85	3174	55	7066	85	4092	113	5758	32	30
40	4887	36	6567	85	3230	56	6980	86	3979	113	5726	32	20
50	4924	37	6652	85	3286	56	6895	85	3866	113	5695	31	10
55 0	0.654961	37	0.866736	84	1.323341	55	1.526809	86	1.153753	113	0.755663	32	**5** 0
10	4997	36	6821	85	3397	56	6724	85	3640	113	5631	32	50
20	5034	37	6906	85	3452	55	6638	86	3527	113	5599	32	40
30	5071	37	6991	85	3508	56	6553	85	3414	113	5568	31	30
40	5107	36	7076	85	3564	56	6468	85	3301	113	5536	32	20
50	5144	37	7161	85	3619	55	6382	86	3188	113	5504	32	10
56 0	0.655180	36	0.867246	85	1.323675	56	1.526297	85	1.153075	113	0.755472	32	**4** 0
10	5217	37	7331	85	3731	56	6212	85	2962	113	5441	31	50
20	5254	37	7416	85	3786	55	6126	86	2850	112	5409	32	40
30	5290	36	7501	85	3842	56	6041	85	2737	113	5377	32	30
40	5327	37	7586	85	3898	56	5956	85	2624	113	5345	32	20
50	5364	37	7671	85	3953	55	5871	85	2511	113	5314	31	10
57 0	0.655400	36	0.867756	85	1.324009	56	1.525785	86	1.152398	113	0.755282	32	**3** 0
10	5437	37	7841	85	4065	56	5700	85	2285	113	5250	32	50
20	5473	36	7926	85	4121	56	5615	85	2172	113	5218	32	40
30	5510	37	8011	85	4176	55	5530	85	2059	113	5186	32	30
40	5547	37	8096	85	4232	56	5445	85	1947	112	5155	31	20
50	5583	36	8181	85	4288	56	5359	86	1834	113	5123	32	10
58 0	0.655620	37	0.868266	85	1.324343	55	1.525274	85	1.151721	113	0.755091	32	**2** 0
10	5656	36	8351	85	4399	56	5189	85	1608	113	5059	32	50
20	5693	37	8436	85	4455	56	5104	85	1495	113	5028	31	40
30	5730	37	8521	85	4511	56	5019	85	1383	112	4996	32	30
40	5766	36	8606	85	4567	56	4934	85	1270	113	4964	32	20
50	5803	37	8691	85	4622	55	4848	86	1157	113	4932	32	10
59 0	0.655839	36	0.868776	85	1.324678	56	1.524763	85	1.151044	113	0.754900	32	**1** 0
10	5876	37	8861	85	4734	56	4678	85	0932	112	4869	31	50
20	5913	37	8946	85	4790	56	4593	85	0819	113	4837	32	40
30	5949	36	9031	86	4846	56	4508	85	0706	113	4805	32	30
40	5986	37	9117	85	4901	55	4423	85	0594	112	4773	32	20
50	6022	36	9202	85	4957	56	4338	85	0481	113	4741	32	10
60 0	0.656059	37	0.869287	85	1.325013	56	1.524253	85	1.150368	113	0.754710	31	**0** 0
	cos		cotg		cosec		sec		tang		sin		

32		37		55		84		86		112		114		115	
1	3.2	1	3·7	1	5·5	1	8.4	1	8.6	1	11.2	1	11.4	1	11.5
2	6.4	2	7·4	2	11.0	2	16.8	2	17.2	2	22.4	2	22.8	2	23.0
3	9.6	3	11.1	3	16.5	3	25.2	3	25.8	3	33.6	3	34.2	3	34.5
4	12.8	4	14.8	4	22.0	4	33.6	4	34·4			4	45.6	4	46.0
5	16.0	5	18.5	5	27.5	5	42.0	5	43.0			5	57.0	5	57.5
6	19.2	6	22.2	6	33.0	6	50.4	6	51.6			6	68.4	6	69.0
7	22.4	7	25.9	7	38.5	7	58.8	7	60.2			7	79.8	7	80.5
8	25.6	8	29.6	8	44.0	8	67.2	8	68.8			8	91.2	8	92.0
9	28.8	9	33·3	9	49.5	9	75.6	9	77·4			9	102.6	9	103.5

49°

41°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.656059		0.869287		1.325013		1.524253		1.150368		0.754710		**60′** 0″
10	6096	37	9372	85	5069	56	4168	85	0256	112	4678	32	50
20	6132	36	9457	85	5125	56	4083	85	0143	113	4646	32	40
30	6169	37	9542	85	5181	56	3998	85	1.150031	112	4614	32	30
40	6205	36	9627	85	5236	55	3913	85	1.149918	113	4582	32	20
50	6242	37	9712	85	5292	56	3828	85	9805	113	4551	31	10
1 0	0.656279	37	0.869798	86	1.325348	56	1.523743	85	1.149693	112	0.754519	32	**59** 0
10	6315	36	9883	85	5404	56	3658	85	9580	113	4487	32	50
20	6352	37	0.869968	85	5460	56	3573	85	9468	112	4455	32	40
30	6388	36	0.870053	85	5516	56	3489	84	9355	113	4423	32	30
40	6425	37	0138	85	5572	56	3404	85	9243	112	4391	32	20
50	6461	36	0223	85	5628	56	3319	85	9130	113	4360	31	10
2 0	0.656498	37	0.870309	86	1.325684	56	1.523234	85	1.149018	112	0.754328	32	**58** 0
10	6535	37	0394	85	5740	56	3149	85	8905	113	4296	32	50
20	6571	36	0479	85	5796	56	3064	85	8793	112	4264	32	40
30	6608	37	0564	85	5851	55	2979	85	8680	113	4232	32	30
40	6644	36	0650	86	5907	56	2895	84	8568	112	4200	32	20
50	6681	37	0735	85	5963	56	2810	85	8455	113	4169	31	10
3 0	0.656717	36	0.870820	85	1.326019	56	1.522725	85	1.148343	112	0.754137	32	**57** 0
10	6754	37	0905	85	6075	56	2640	85	8231	112	4105	32	50
20	6791	37	0991	86	6131	56	2556	84	8118	113	4073	32	40
30	6827	36	1076	85	6187	56	2471	85	8006	112	4041	32	30
40	6864	37	1161	85	6243	56	2386	85	7893	113	4009	32	20
50	6900	36	1246	85	6299	56	2301	85	7781	112	3978	31	10
4 0	0.656937	37	0.871332	86	1.326355	56	1.522217	84	1.147669	112	0.753946	32	**56** 0
10	6973	36	1417	85	6411	56	2132	85	7556	113	3914	32	50
20	7010	37	1502	85	6468	57	2047	85	7444	112	3882	32	40
30	7046	36	1588	86	6524	56	1963	84	7332	112	3850	32	30
40	7083	37	1673	85	6580	56	1878	85	7219	113	3818	32	20
50	7119	36	1758	85	6636	56	1793	85	7107	112	3786	32	10
5 0	0.657156	37	0.871843	85	1.326692	56	1.521709	84	1.146995	112	0.753755	31	**55** 0
10	7193	37	1929	86	6748	56	1624	85	6883	112	3723	32	50
20	7229	36	2014	85	6804	56	1539	85	6770	113	3691	32	40
30	7266	37	2100	86	6860	56	1455	84	6658	112	3659	32	30
40	7302	36	2185	85	6916	56	1370	85	6546	112	3627	32	20
50	7339	37	2270	85	6972	56	1286	84	6434	112	3595	32	10
6 0	0.657375	36	0.872356	86	1.327028	56	1.521201	85	1.146322	112	0.753563	32	**54** 0
10	7412	37	2441	85	7084	56	1117	84	6209	113	3532	31	50
20	7448	36	2526	85	7141	57	1032	85	6097	112	3500	32	40
30	7485	37	2612	86	7197	56	0948	84	5985	112	3468	32	30
40	7521	36	2697	85	7253	56	0863	85	5873	112	3436	32	20
50	7558	37	2783	86	7309	56	0779	84	5761	112	3404	32	10
7 0	0.657594	36	0.872868	85	1.327365	56	1.520694	85	1.145649	112	0.753372	32	**53** 0
10	7631	37	2953	85	7421	56	0610	84	5537	112	3340	32	50
20	7667	36	3039	86	7478	57	0525	85	5424	113	3308	32	40
30	7704	37	3124	85	7534	56	0441	84	5312	112	3276	32	30
40	7741	37	3210	86	7590	56	0356	85	5200	112	3245	31	20
50	7777	36	3295	85	7646	56	0272	84	5088	112	3213	32	10
8 0	0.657814	37	0.873381	86	1.327702	56	1.520188	84	1.144976	112	0.753181	32	**52** 0
10	7850	36	3466	85	7759	57	0103	85	4864	112	3149	32	50
20	7887	37	3552	86	7815	56	1.520019	84	4752	112	3117	32	40
30	7923	36	3637	85	7871	56	1.519935	84	4640	112	3085	32	30
40	7960	37	3723	86	7927	56	9850	85	4528	112	3053	32	20
50	7996	36	3808	85	7984	57	9766	84	4416	112	3021	32	10
9 0	0.658033	37	0.873894	86	1.328040	56	1.519682	84	1.144304	112	0.752989	32	**51** 0
10	8069	36	3979	85	8096	56	9597	85	4192	112	2958	31	50
20	8106	37	4065	86	8152	56	9513	84	4080	112	2926	32	40
30	8142	36	4150	85	8209	57	9429	84	3968	112	2894	32	30
40	8179	37	4236	86	8265	56	9344	85	3856	112	2862	32	20
50	8215	36	4321	85	8321	56	9260	84	3744	112	2830	32	10
10 0	0.658252	37	0.874407	86	1.328378	57	1.519176	84	1.143633	111	0.752798	32	**50** 0
	cos		cotg		cosec		sec		tang		sin		

31

1	3.1
2	6.2
3	9.3
4	12.4
5	15.5
6	18.6
7	21.7
8	24.8
9	27.9

36

1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

55

1	5.5
2	11.0
3	16.5
4	22.0
5	27.5
6	33.0
7	38.5
8	44.0
9	49.5

57

1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

84

1	8.4
2	16.8
3	25.2
4	33.6
5	42.0
6	50.4
7	58.8
8	67.2
9	75.6

86

1	8.6
2	17.2
3	25.8
4	34.4
5	43.0
6	51.6
7	60.2
8	68.8
9	77.4

112

1	11.2
2	22.4
3	33.6
4	44.8
5	56.0
6	67.2
7	78.4
8	89.6
9	100.8

48°

41°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.658252		0.874407		1.328378		1.519176		1.143633		0.752798		**50′** 0″
10	8288	36	4492	85	8434	56	9092	84	3521	112	2766	32	50
20	8325	37	4578	86	8490	56	9007	85	3409	112	2734	32	40
30	8361	36	4663	85	8547	57	8923	84	3297	112	2702	32	30
40	8398	37	4749	86	8603	56	8839	84	3185	112	2670	32	20
50	8434	36	4835	86	8659	56	8755	84	3073		2638	32	10
11 0	0.658471	37	0.874920	85	1.328716	57	1.518671	84	1.142961	112	0.752606	32	**49** 0
10	8507	36	5006	86	8772	56	8587	84	2850	111	2575	31	50
20	8544	37	5091	85	8828	56	8502	85	2738	112	2543	32	40
30	8580	36	5177	86	8885	57	8418	84	2626	112	2511	32	30
40	8617	37	5263	86	8941	56	8334	84	2514	112	2479	32	20
50	8653	36	5348	85	8998	57	8250	84	2403	111	2447	32	10
12 0	0.658689	36	0.875434	86	1.329054	56	1.518166	84	1.142291	112	0.752415	32	**48** 0
10	8726	37	5519	85	9110	56	8082	84	2179	112	2383	32	50
20	8762	36	5605	86	9167	57	7998	84	2067	112	2351	32	40
30	8799	37	5691	86	9223	56	7914	84	1956	111	2319	32	30
40	8835	36	5776	85	9280	57	7830	84	1844	112	2287	32	20
50	8872	37	5862	86	9336	56	7746	84	1732	112	2255	32	10
13 0	0.658908	36	0.875948	86	1.329393	57	1.517662	84	1.141621	111	0.752223	32	**47** 0
10	8945	37	6033	85	9449	56	7578	84	1509	112	2191	32	50
20	8981	36	6119	86	9505	56	7494	84	1397	112	2159	32	40
30	9018	37	6205	86	9562	57	7410	84	1286	111	2127	32	30
40	9054	36	6291	86	9618	56	7326	84	1174	112	2095	32	20
50	9091	37	6376	85	9675	57	7242	84	1062	112	2064	31	10
14 0	0.659127	36	0.876462	86	1.329731	56	1.517158	84	1.140951	111	0.752032	32	**46** 0
10	9164	37	6548	86	9788	57	7074	84	0839	112	2000	32	50
20	9200	36	6633	85	9844	56	6990	84	0728	111	1968	32	40
30	9236	36	6719	86	9901	57	6906	84	0616	112	1936	32	30
40	9273	37	6805	86	1.329957	56	6823	83	0505	111	1904	32	20
50	9309	36	6891	86	1.330014	57	6739	84	0393	112	1872	32	10
15 0	0.659346	37	0.876976	85	1.330071	57	1.516655	84	1.140281	112	0.751840	32	**45** 0
10	9382	36	7062	86	0127	56	6571	84	0170	111	1808	32	50
20	9419	37	7148	86	0184	57	6487	84	1.140058	112	1776	32	40
30	9455	36	7234	86	0240	56	6403	84	1.139947	111	1744	32	30
40	9492	37	7320	86	0297	57	6320	83	9835	112	1712	32	20
50	9528	36	7405	85	0353	56	6236	84	9724	111	1680	32	10
16 0	0.659564	36	0.877491	86	1.330410	57	1.516152	84	1.139613	111	0.751648	32	**44** 0
10	9601	37	7577	86	0467	57	6068	84	9501	112	1616	32	50
20	9637	36	7663	86	0523	56	5984	84	9390	111	1584	32	40
30	9674	37	7749	86	0580	57	5901	83	9278	112	1552	32	30
40	9710	36	7835	86	0636	56	5817	84	9167	111	1520	32	20
50	9747	37	7920	85	0693	57	5733	84	9055	112	1488	32	10
17 0	0.659783	36	0.878006	86	1.330750	57	1.515650	83	1.138944	111	0.751456	32	**43** 0
10	9820	37	8092	86	0806	56	5566	84	8833	111	1424	32	50
20	9856	36	8178	86	0863	57	5482	84	8721	112	1392	32	40
30	9892	36	8264	86	0920	57	5399	83	8610	111	1360	32	30
40	9929	37	8350	86	0976	56	5315	84	8499	111	1328	32	20
50	0.659965	36	8436	86	1033	57	5231	84	8387	112	1296	32	10
18 0	0.660002	37	0.878521	85	1.331090	57	1.515148	83	1.138276	111	0.751264	32	**42** 0
10	0038	36	8607	86	1146	56	5064	84	8165	111	1232	32	50
20	0075	37	8693	86	1203	57	4980	84	8054	111	1200	32	40
30	0111	36	8779	86	1260	57	4897	83	7942	112	1168	32	30
40	0147	36	8865	86	1317	57	4813	84	7831	111	1136	32	20
50	0184	37	8951	86	1373	56	4730	83	7720	111	1104	32	10
19 0	0.660220	36	0.879037	86	1.331430	57	1.514646	84	1.137609	111	0.751072	32	**41** 0
10	0257	37	9123	86	1487	57	4563	83	7497	112	1040	32	50
20	0293	36	9209	86	1544	57	4479	84	7386	111	1008	32	40
30	0329	36	9295	86	1600	56	4396	83	7275	111	0976	32	30
40	0366	37	9381	86	1657	57	4312	84	7164	111	0944	32	20
50	0402	36	9467	86	1714	57	4229	83	7053	111	0912	32	10
20 0	0.660439	37	0.879553	86	1.331771	57	1.514145	84	1.136941	112	0.750880	32	**40** 0
	cos		cotg		cosec		sec		tang		sin		

32		37		56		83		85		111		113	
1	3.2	1	3.7	1	5.6	1	8.3	1	8.5	1	11.1	1	11.3
2	6.4	2	7.4	2	11.2	2	16.6	2	17.0	2	22.2	2	22.6
3	9.6	3	11.1	3	16.8	3	24.9	3	25.5	3	33.3	3	33.9
4	12.8	4	14.8	4	22.4	4	33.2	4	34.0	4	44.4	4	45.2
5	16.0	5	18.5	5	28.0	5	41.5	5	42.5	5	55.5	5	56.5
6	19.2	6	22.2	6	33.6	6	49.8	6	51.0	6	66.6	6	67.8
7	22.4	7	25.9	7	39.2	7	58.1	7	59.5	7	77.7	7	79.1
8	25.6	8	29.6	8	44.8	8	66.4	8	68.0	8	88.8	8	90.4
9	28.8	9	33.3	9	50.4	9	74.7	9	76.5	9	99.9	9	101.7

48°

41°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.660439		0.879553		1.331771		1.514145		1.136941		0.750880		**40′** 0″
10	0475	36	9639	86	1827	56	4062	83	6830	111	0848	32	50
20	0511	36	9725	86	1884	57	3978	84	6719	111	0816	32	40
30	0548	37	9811	86	1941	57	3895	83	6608	111	0784	32	30
40	0584	36	9897	86	1998	57	3812	83	6497	111	0752	32	20
50	0621	37	0.879983		2055	57	3728	84	6386	111	0720	32	10
21 0	0.660657	36	0.880069	86	1.332112	57	1.513645	83	1.136275	111	0.750688	32	**39** 0
10	0693	36	0155	86	2168	56	3561	84	6164	111	0656	32	50
20	0730	37	0241	86	2225	57	3478	83	6053	111	0624	32	40
30	0766	36	0327	86	2282	57	3395	83	5942	111	0592	32	30
40	0803	37	0413	86	2339	57	3311	84	5831	111	0560	32	20
50	0839	36	0499	86	2396	57	3228	83	5720	111	0528	32	10
22 0	0.660875	36	0.880585	86	1.332453	57	1.513145	83	1.135609	111	0.750496	32	**38** 0
10	0912	37	0671	86	2510	57	3061	84	5498	111	0464	32	50
20	0948	36	0757	86	2566	56	2978	83	5387	111	0432	32	40
30	0985	37	0843	86	2623	57	2895	83	5276	111	0400	32	30
40	1021	36	0930	87	2680	57	2812	83	5165	111	0368	32	20
50	1057	36	1016	86	2737	57	2728	84	5054	111	0335	33	10
23 0	0.661094	37	0.881102	86	1.332794	57	1.512645	83	1.134943	111	0.750303	32	**37** 0
10	1130	36	1188	86	2851	57	2562	83	4832	111	0271	32	50
20	1166	36	1274	86	2908	57	2479	84	4721	111	0239	32	40
30	1203	37	1360	86	2965	57	2395	83	4610	111	0207	32	30
40	1239	36	1446	86	3022	57	2312	83	4499	111	0175	32	20
50	1275	36	1532	86	3079	57	2229	83	4388	111	0143	32	10
24 0	0.661312	37	0.881619	87	1.333136	57	1.512146	83	1.134277	111	0.750111	32	**36** 0
10	1348	36	1705	86	3193	57	2063	83	4166	111	0079	32	50
20	1385	37	1791	86	3250	57	1980	83	4056	110	0047	32	40
30	1421	36	1877	86	3307	57	1896	84	3945	111	0.750015	32	30
40	1457	36	1963	86	3364	57	1813	83	3834	111	0.749983	32	20
50	1494	37	2050	87	3421	57	1730	83	3723	111	9951	32	10
25 0	0.661530	36	0.882136	86	1.333478	57	1.511647	83	1.133612	111	0.749919	32	**35** 0
10	1566	36	2222	86	3535	57	1564	83	3502	110	9887	32	50
20	1603	37	2308	86	3592	57	1481	83	3391	111	9855	32	40
30	1639	36	2394	86	3649	57	1398	83	3280	111	9822	33	30
40	1675	36	2481	87	3706	57	1315	83	3169	111	9790	32	20
50	1712	37	2567	86	3763	57	1232	83	3059	110	9758	32	10
26 0	0.661748	36	0.882653	86	1.333820	57	1.511149	83	1.132948	111	0.749726	32	**34** 0
10	1784	36	2739	86	3877	57	1066	83	2837	111	9694	32	50
20	1821	37	2826	87	3934	57	0983	83	2727	110	9662	32	40
30	1857	36	2912	86	3992	58	0900	83	2616	111	9630	32	30
40	1894	37	2998	86	4049	57	0817	83	2505	111	9598	32	20
50	1930	36	3084	86	4106	57	0734	83	2395	110	9566	32	10
27 0	0.661966	36	0.883171	87	1.334163	57	1.510651	83	1.132284	111	0.749534	32	**33** 0
10	2003	37	3257	86	4220	57	0568	83	2173	111	9502	32	50
20	2039	36	3343	86	4277	57	0485	83	2063	110	9469	33	40
30	2075	36	3430	87	4334	57	0402	83	1952	111	9437	32	30
40	2112	37	3516	86	4391	57	0320	82	1841	111	9405	32	20
50	2148	36	3602	86	4449	58	0237	83	1731	110	9373	32	10
28 0	0.662184	36	0.883689	87	1.334506	57	1.510154	83	1.131620	111	0.749341	32	**32** 0
10	2221	37	3775	86	4563	57	1.510071	83	1510	110	9309	32	50
20	2257	36	3861	86	4620	57	1.509988	83	1399	111	9277	32	40
30	2293	36	3948	87	4677	57	9905	83	1289	110	9245	32	30
40	2330	37	4034	86	4735	58	9822	83	1178	111	9213	32	20
50	2366	36	4120	86	4792	57	9740	82	1068	110	9181	32	10
29 0	0.662402	36	0.884207	87	1.334849	57	1.509657	83	1.130957	111	0.749148	33	**31** 0
10	2438	36	4293	86	4906	57	9574	83	0847	110	9116	32	50
20	2475	37	4380	87	4963	57	9491	83	0736	111	9084	32	40
30	2511	36	4466	86	5021	58	9409	82	0626	110	9052	32	30
40	2547	36	4552	86	5078	57	9326	83	0515	111	9020	32	20
50	2584	37	4639	87	5135	57	9243	83	0405	110	8988	32	10
30 0	0.662620	36	0.884725	86	1.335192	57	1.509160	83	1.130294	111	0.748956	32	**30** 0
	cos		cotg		cosec		sec		tang		sin		

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

36

1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

56

1	5.6
2	11.2
3	16.8
4	22.4
5	28.0
6	33.6
7	39.2
8	44.8
9	50.4

58

1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

83

1	8.3
2	16.6
3	24.9
4	33.2
5	41.5
6	49.8
7	58.1
8	66.4
9	74.7

86

1	8.6
2	17.2
3	25.8
4	34.4
5	43.0
6	51.6
7	60.2
8	68.8
9	77.4

109

1	10.9
2	21.8
3	32.7
4	43.6
5	54.5
6	65.4
7	76.3
8	87.2
9	98.1

111

1	11.1
2	22.2
3	33.3
4	44.4
5	55.5
6	66.6
7	77.7
8	88.8
9	99.9

48°

41°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.662620		0.884725		1.335192		1.509160		1.130294		0.748956		**30′** 0″
10	2656	36	4812	87	5250	58	9078	82	0184	110	8924	32	50
20	2693	37	4898	86	5307	57	8995	83	1.130074	110	8891	33	40
30	2729	36	4985	87	5364	57	8912	83	1.129963	111	8859	32	30
40	2765	36	5071	86	5422	58	8830	82	9853	110	8827	32	20
50	2802	37	5158	87	5479	57	8747	83	9742	111	8795	32	10
31 0	0.662838	36	0.885244	86	1.335536	57	1.508665	82	1.129632	110	0.748763	32	**29** 0
10	2874	36	5330	86	5594	58	8582	83	9522	110	8731	32	50
20	2910	36	5417	87	5651	57	8499	83	9411	111	8699	32	40
30	2947	37	5503	86	5708	57	8417	82	9301	110	8667	32	30
40	2983	36	5590	87	5766	58	8334	83	9191	110	8634	33	20
50	3019	36	5676	86	5823	57	8252	82	9081	110	8602	32	10
32 0	0.663056	37	0.885763	87	1.335880	57	1.508169	83	1.128970	111	0.748570	32	**28** 0
10	3092	36	5849	86	5938	58	8086	83	8860	110	8538	32	50
20	3128	36	5936	87	5995	57	8004	82	8750	110	8506	32	40
30	3165	37	6023	87	6052	57	7921	83	8639	111	8474	32	30
40	3201	36	6109	86	6110	58	7839	82	8529	110	8441	33	20
50	3237	36	6196	87	6167	57	7756	83	8419	110	8409	32	10
33 0	0.663273	36	0.886282	86	1.336225	58	1.507674	82	1.128309	110	0.748377	32	**27** 0
10	3310	37	6369	87	6282	57	7591	83	8199	110	8345	32	50
20	3346	36	6455	86	6339	57	7509	82	8088	111	8313	32	40
30	3382	36	6542	87	6397	58	7427	82	7978	110	8281	32	30
40	3418	36	6629	87	6454	57	7344	83	7868	110	8249	32	20
50	3455	37	6715	86	6512	58	7262	82	7758	110	8216	33	10
34 0	0.663491	36	0.886802	87	1.336569	57	1.507179	83	1.127648	110	0.748184	32	**26** 0
10	3527	36	6888	86	6627	58	7097	82	7538	110	8152	32	50
20	3564	37	6975	87	6684	57	7015	82	7428	110	8120	32	40
30	3600	36	7062	87	6742	58	6932	83	7317	111	8088	32	30
40	3636	36	7148	86	6799	57	6850	82	7207	110	8056	32	20
50	3672	36	7235	87	6857	58	6768	82	7097	110	8023	33	10
35 0	0.663709	37	0.887321	86	1.336914	57	1.506685	83	1.126987	110	0.747991	32	**25** 0
10	3745	36	7408	87	6972	58	6603	82	6877	110	7959	32	50
20	3781	36	7495	87	7029	57	6521	82	6767	110	7927	32	40
30	3817	36	7581	86	7087	58	6438	83	6657	110	7895	32	30
40	3854	37	7668	87	7144	57	6356	82	6547	110	7862	33	20
50	3890	36	7755	87	7202	58	6274	82	6437	110	7830	32	10
36 0	0.663926	36	0.887842	87	1.337259	57	1.506191	83	1.126327	110	0.747798	32	**24** 0
10	3962	36	7928	86	7317	58	6109	82	6217	110	7766	32	50
20	3999	37	8015	87	7375	58	6027	82	6107	110	7734	32	40
30	4035	36	8102	87	7432	57	5945	82	5997	110	7702	32	30
40	4071	36	8188	86	7490	58	5863	82	5887	110	7669	33	20
50	4107	36	8275	87	7547	57	5780	83	5777	110	7637	32	10
37 0	0.664144	37	0.888362	87	1.337605	58	1.505698	82	1.125667	110	0.747605	32	**23** 0
10	4180	36	8449	87	7662	57	5616	82	5558	109	7573	32	50
20	4216	36	8535	86	7720	58	5534	82	5448	110	7541	32	40
30	4252	36	8622	87	7778	58	5452	82	5338	110	7508	33	30
40	4289	37	8709	87	7835	57	5370	82	5228	110	7476	32	20
50	4325	36	8796	87	7893	58	5288	82	5118	110	7444	32	10
38 0	0.664361	36	0.888882	86	1.337951	58	1.505205	83	1.125008	110	0.747412	32	**22** 0
10	4397	36	8969	87	8008	57	5123	82	4898	110	7379	33	50
20	4434	37	9056	87	8066	58	5041	82	4788	110	7347	32	40
30	4470	36	9143	87	8124	58	4959	82	4679	109	7315	32	30
40	4506	36	9230	87	8181	57	4877	82	4569	110	7283	32	20
50	4542	36	9316	86	8239	58	4795	82	4459	110	7251	32	10
39 0	0.664579	37	0.889403	87	1.338297	58	1.504713	82	1.124349	110	0.747218	33	**21** 0
10	4615	36	9490	87	8354	57	4631	82	4240	109	7186	32	50
20	4651	36	9577	87	8412	58	4549	82	4130	110	7154	32	40
30	4687	36	9664	87	8470	58	4467	82	4020	110	7122	32	30
40	4723	36	9751	87	8528	58	4385	82	3910	110	7090	32	20
50	4760	37	9838	87	8585	57	4303	82	3801	109	7057	33	10
40 0	0.664796	36	0.889924	86	1.338643	58	1.504221	82	1.123691	110	0.747025	32	**20** 0
	cos		cotg		cosec		sec		tang		sin		

33
1 3·3
2 6.6
3 9·9
4 13·2
5 16.5
6 19.8
7 23.1
8 26.4
9 29·7

37
1 3·7
2 7·4
3 11.1
4 14.8
5 18.5
6 22.2
7 25.9
8 29.6
9 33·3

57
1 5·7
2 11.4
3 17.1
4 22.8
5 28.5
6 34.2
7 39·9
8 45.6
9 51.3

82
1 8.2
2 16.4
3 24.6
4 32.8
5 41.0
6 49.2
7 57.4
8 65.6
9 73.8

84
1 8.4
2 16.8
3 25.2
4 33.6
5 42.0
6 50.4
7 58.8
8 67.2
9 75.6

87
1 8.7
2 17.4
3 26.1
4 34.8
5 43.5
6 52.2
7 60.9
8 69.6
9 78.3

110
1 11.0
2 22.0
3 33.0
4 44.0
5 55.0
6 66.0
7 77.0
8 88.0
9 99.0

111
1 11.1
2 22.2
3 33.3
4 44.4
5 55.5
6 66.6
7 77.7
8 88.8
9 99.9

41°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.664796		0.889924		1.338643		1.504221		1.123691		0.747025		**20′** 0″
10	4832	36	0.890011	87	8701	58	4139	82	3581	110	6993	32	50
20	4868	36	0098	87	8759	58	4057	82	3472	109	6961	32	40
30	4905	37	0185	87	8816	57	3975	82	3362	110	6928	33	30
40	4941	36	0272	87	8874	58	3893	82	3252	110	6896	32	20
50	4977	36	0359	87	8932	58	3812	81	3143	109	6864	32	10
41 0	0.665013	36	0.890446	87	1.338990	58	1.503730	82	1.123033	110	0.746832	32	**19** 0
10	5049	36	0533	87	9048	58	3648	82	2923	110	6799	33	50
20	5086	37	0620	87	9105	57	3566	82	2814	109	6767	32	40
30	5122	36	0707	87	9163	58	3484	82	2704	110	6735	32	30
40	5158	36	0794	87	9221	58	3402	82	2595	109	6703	32	20
50	5194	36	0881	87	9279	58	3320	82	2485	110	6670	33	10
42 0	0.665230	36	0.890967	86	1.339337	58	1.503239	81	1.122375	110	0.746638	32	**18** 0
10	5267	37	1054	87	9395	58	3157	82	2266	109	6606	32	50
20	5303	36	1141	87	9453	58	3075	82	2156	110	6574	32	40
30	5339	36	1228	87	9510	57	2993	82	2047	109	6541	33	30
40	5375	36	1315	87	9568	58	2912	81	1937	110	6509	32	20
50	5411	36	1402	87	9626	58	2830	82	1828	109	6477	32	10
43 0	0.665448	37	0.891489	87	1.339684	58	1.502748	82	1.121718	110	0.746445	32	**17** 0
10	5484	36	1576	87	9742	58	2666	82	1609	109	6412	33	50
20	5520	36	1663	88	9800	58	2585	81	1499	110	6380	32	40
30	5556	36	1751	87	9858	58	2503	82	1390	109	6348	32	30
40	5592	36	1838	87	9916	58	2421	82	1280	110	6316	32	20
50	5628	36	1925	87	1.339974	58	2340	81	1171	109	6283	33	10
44 0	0.665665	37	0.892012	87	1.340032	58	1.502258	82	1.121062	109	0.746251	32	**16** 0
10	5701	36	2099	87	0090	58	2176	82	0952	110	6219	32	50
20	5737	36	2186	87	0148	58	2095	81	0843	109	6186	33	40
30	5773	36	2273	87	0206	58	2013	82	0733	110	6154	32	30
40	5809	36	2360	87	0264	58	1932	81	0624	109	6122	32	20
50	5845	36	2447	87	0321	57	1850	82	0515	109	6090	32	10
45 0	0.665882	37	0.892534	87	1.340379	58	1.501768	82	1.120405	110	0.746057	33	**15** 0
10	5918	36	2621	87	0437	58	1687	81	0296	109	6025	32	50
20	5954	36	2708	87	0496	59	1605	82	0187	109	5993	32	40
30	5990	36	2795	87	0554	58	1524	81	1.120077	110	5961	32	30
40	6026	36	2883	88	0612	58	1442	82	1.119968	109	5928	33	20
50	6062	36	2970	87	0670	58	1361	81	9859	109	5896	32	10
46 0	0.666099	37	0.893057	87	1.340728	58	1.501279	82	1.119750	109	0.745864	32	**14** 0
10	6135	36	3144	87	0786	58	1198	81	9640	110	5831	33	50
20	6171	36	3231	87	0844	58	1116	82	9531	109	5799	32	40
30	6207	36	3318	88	0902	58	1035	81	9422	109	5767	32	30
40	6243	36	3406	87	0960	58	0953	82	9313	109	5734	33	20
50	6279	36	3493	87	1018	58	0872	81	9203	110	5702	32	10
47 0	0.666316	37	0.893580	87	1.341076	58	1.500790	82	1.119094	109	0.745670	32	**13** 0
10	6352	36	3667	87	1134	58	0709	81	8985	109	5638	32	50
20	6388	36	3754	88	1192	58	0628	81	8876	109	5605	33	40
30	6424	36	3842	87	1250	58	0546	82	8767	109	5573	32	30
40	6460	36	3929	87	1309	59	0465	81	8657	110	5541	32	20
50	6496	36	4016	87	1367	58	0383	82	8548	109	5508	33	10
48 0	0.666532	36	0.894103	87	1.341425	58	1.500302	81	1.118439	109	0.745476	32	**12** 0
10	6569	37	4190	87	1483	58	0221	81	8330	109	5444	32	50
20	6605	36	4278	88	1541	58	0139	82	8221	109	5411	33	40
30	6641	36	4365	87	1599	58	1.500058	81	8112	109	5379	32	30
40	6677	36	4452	87	1657	58	1.499977	81	8003	109	5347	32	20
50	6713	36	4539	87	1716	59	9895	82	7894	109	5314	33	10
49 0	0.666749	36	0.894627	88	1.341774	58	1.499814	81	1.117785	109	0.745282	32	**11** 0
10	6785	36	4714	87	1832	58	9733	81	7676	109	5250	32	50
20	6822	37	4801	87	1890	58	9652	81	7566	110	5217	33	40
30	6858	36	4889	88	1948	58	9570	82	7457	109	5185	32	30
40	6894	36	4976	87	2007	59	9489	81	7348	109	5153	32	20
50	6930	36	5063	87	2065	58	9408	81	7239	109	5120	33	10
50 0	0.666966	36	0.895151	88	1.342123	58	1.499327	81	1.117130	109	0.745088	32	**10** 0
	cos		cotg		cosec		sec		tang		sin		

32	
1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

57	
1	5.7
2	11.4
3	17.1
4	22.8
5	28.5
6	34.2
7	39.9
8	45.6
9	51.3

59	
1	5.9
2	11.8
3	17.7
4	23.6
5	29.5
6	35.4
7	41.3
8	47.2
9	53.1

81	
1	8.1
2	16.2
3	24.3
4	32.4
5	40.5
6	48.6
7	56.7
8	64.8
9	72.9

86	
1	8.6
2	17.2
3	25.8
4	34.4
5	43.0
6	51.6
7	60.2
8	68.8
9	77.4

88	
1	8.8
2	17.6
3	26.4
4	35.2
5	44.0
6	52.8
7	61.6
8	70.4
9	79.2

109	
1	10.9
2	21.8
3	32.7
4	43.6
5	54.5
6	65.4
7	76.3
8	87.2
9	98.1

48°

41°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.666966		0.895151		1.342123		1.499327		1.117130		0.745088		**10′** 0″
10	7002	36	5238	87	2181	58	9245	82	7021	109	5056	32	50
20	7038	36	5325	87	2240	59	9164	81	6913	108	5023	33	40
30	7074	36	5413	88	2298	58	9083	81	6804	109	4991	32	30
40	7111	37	5500	87	2356	58	9002	81	6695	109	4959	32	20
50	7147	36	5587	87	2414	58	8921	81	6586	109	4926	33	10
51 0	0.667183	36	0.895675	88	1.342473	59	1.498840	81	1.116477	109	0.744894	32	**9** 0
10	7219	36	5762	87	2531	58	8759	81	6368	109	4862	32	50
20	7255	36	5849	87	2589	58	8677	82	6259	109	4829	33	40
30	7291	36	5937	88	2648	59	8596	81	6150	109	4797	32	30
40	7327	36	6024	87	2706	58	8515	81	6041	109	4765	32	20
50	7363	36	6112	88	2764	58	8434	81	5932	109	4732	33	10
52 0	0.667399	36	0.896199	87	1.342823	59	1.498353	81	1.115823	109	0.744700	32	**8** 0
10	7436	37	6287	88	2881	58	8272	81	5715	108	4668	32	50
20	7472	36	6374	87	2939	58	8191	81	5606	109	4635	33	40
30	7508	36	6461	87	2998	59	8110	81	5497	109	4603	32	30
40	7544	36	6549	88	3056	58	8029	81	5388	109	4571	32	20
50	7580	36	6636	87	3115	59	7948	81	5279	109	4538	33	10
53 0	0.667616	36	0.896724	88	1.343173	58	1.497867	81	1.115171	108	0.744506	32	**7** 0
10	7652	36	6811	87	3231	58	7786	81	5062	109	4473	33	50
20	7688	36	6899	88	3290	59	7705	81	4953	109	4441	32	40
30	7724	36	6986	87	3348	58	7624	81	4844	109	4409	32	30
40	7760	36	7074	88	3407	59	7543	81	4736	108	4376	33	20
50	7796	36	7161	87	3465	58	7462	81	4627	109	4344	32	10
54 0	0.667833	37	0.897249	88	1.343523	58	1.497381	81	1.114518	109	0.744312	32	**6** 0
10	7869	36	7336	87	3582	59	7300	81	4410	108	4279	33	50
20	7905	36	7424	88	3640	58	7220	80	4301	109	4247	32	40
30	7941	36	7511	87	3699	59	7139	81	4192	109	4214	33	30
40	7977	36	7599	88	3757	58	7058	81	4083	109	4182	32	20
50	8013	36	7686	87	3816	59	6977	81	3975	108	4150	32	10
55 0	0.668049	36	0.897774	88	1.343874	58	1.496896	81	1.113866	109	0.744117	33	**5** 0
10	8085	36	7861	87	3933	59	6815	81	3758	108	4085	32	50
20	8121	36	7949	88	3991	58	6734	81	3649	109	4052	33	40
30	8157	36	8037	88	4050	59	6654	80	3540	109	4020	32	30
40	8193	36	8124	87	4108	58	6573	81	3432	108	3988	32	20
50	8229	36	8212	88	4167	59	6492	81	3323	109	3955	33	10
56 0	0.668265	36	0.898299	87	1.344225	58	1.496411	81	1.113215	108	0.743923	32	**4** 0
10	8302	37	8387	88	4284	59	6331	80	3106	109	3890	33	50
20	8338	36	8475	88	4342	58	6250	81	2998	108	3858	32	40
30	8374	36	8562	87	4401	59	6169	81	2889	109	3826	32	30
40	8410	36	8650	88	4460	59	6088	81	2780	109	3793	33	20
50	8446	36	8737	87	4518	58	6008	80	2672	108	3761	32	10
57 0	0.668482	36	0.898825	88	1.344577	59	1.495927	81	1.112563	109	0.743728	33	**3** 0
10	8518	36	8913	88	4635	58	5846	81	2455	108	3696	32	50
20	8554	36	9000	87	4694	59	5766	80	2347	108	3664	32	40
30	8590	36	9088	88	4753	59	5685	81	2238	109	3631	33	30
40	8626	36	9176	88	4811	58	5604	81	2130	108	3599	32	20
50	8662	36	9263	87	4870	59	5524	80	2021	109	3566	33	10
58 0	0.668698	36	0.899351	88	1.344928	58	1.495443	81	1.111913	108	0.743534	32	**2** 0
10	8734	36	9439	88	4987	59	5362	81	1804	109	3502	32	50
20	8770	36	9527	88	5046	59	5282	80	1696	108	3469	33	40
30	8806	36	9614	87	5104	58	5201	81	1588	108	3437	32	30
40	8842	36	9702	88	5163	59	5121	80	1479	109	3404	33	20
50	8878	36	9790	88	5222	59	5040	81	1371	108	3372	32	10
59 0	0.668914	36	0.899877	87	1.345280	58	1.494960	80	1.111262	109	0.743339	33	**1** 0
10	8950	36	0.899965	88	5339	59	4879	81	1154	108	3307	32	50
20	8986	36	0.900053	88	5398	59	4799	80	1046	108	3275	32	40
30	9023	37	0141	88	5457	59	4718	81	0937	109	3242	33	30
40	9059	36	0228	87	5515	58	4638	80	0829	108	3210	32	20
50	9095	36	0316	88	5574	59	4557	81	0721	108	3177	33	10
60 0	0.669131	36	0.900404	88	1.345633	59	1.494477	80	1.110613	108	0.743145	32	**0** 0
	cos		cotg		cosec		sec		tang		sin		

33		37		58		80		82		87		108		110	
1	3.3	1	3.7	1	5.8	1	8.0	1	8.2	1	8.7	1	10.8	1	11.0
2	6.6	2	7.4	2	11.6	2	16.0	2	16.4	2	17.4	2	21.6	2	22.0
3	9.9	3	11.1	3	17.4	3	24.0	3	24.6	3	26.1	3	32.4	3	33.0
4	13.2	4	14.8	4	23.2	4	32.0	4	32.8	4	34.8	4	43.2	4	44.0
5	16.5	5	18.5	5	29.0	5	40.0	5	41.0	5	43.5	5	54.0	5	55.0
6	19.8	6	22.2	6	34.8	6	48.0	6	49.2	6	52.2	6	64.8	6	66.0
7	23.1	7	25.9	7	40.6	7	56.0	7	57.4	7	60.9	7	75.6	7	77.0
8	26.4	8	29.6	8	46.4	8	64.0	8	65.6	8	69.6	8	86.4	8	88.0
9	29.7	9	33.3	9	52.2	9	72.0	9	73.8	9	78.3	9	97.2	9	99.0

48°

42°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.669131		0.900404		1.345633		1.494477		1.110613		0.743145		**60′** 0″
10	9167	36	0492	88	5691	58	4396	81	0504	109	3112	33	50
20	9203	36	0580	88	5750	59	4316	80	0396	108	3080	32	40
30	9239	36	0667	87	5809	59	4235	81	0288	108	3047	33	30
40	9275	36	0755	88	5868	59	4155	80	0179	109	3015	32	20
50	9311	36	0843	88	5927	59	4074	81	1.110071	108	2983	32	10
1 0	0.669347	36	0.900931	88	1.345985	58	1.493994	80	1.109963	108	0.742950	33	**59** 0
10	9383	36	1019	88	6044	59	3914	80	9855	108	2918	32	50
20	9419	36	1107	87	6103	59	3833	81	9747	108	2885	33	40
30	9455	36	1194	88	6162	59	3753	80	9638	109	2853	32	30
40	9491	36	1282	88	6221	59	3672	81	9530	108	2820	33	20
50	9527	36	1370	88	6279	58	3592	80	9422	108	2788	32	10
2 0	0.669563	36	0.901458	88	1.346338	59	1.493512	80	1.109314	108	0.742755	33	**58** 0
10	9599	36	1546	88	6397	59	3431	81	9206	108	2723	32	50
20	9635	36	1634	88	6456	59	3351	80	9098	108	2690	33	40
30	9671	36	1722	88	6515	59	3271	80	8990	108	2658	32	30
40	9707	36	1810	88	6574	59	3191	80	8882	108	2626	32	20
50	9743	36	1898	88	6633	59	3110	81	8773	109	2593	33	10
3 0	0.669779	36	0.901985	87	1.346691	58	1.493030	80	1.108665	108	0.742561	32	**57** 0
10	9815	36	2073	88	6750	59	2950	80	8557	108	2528	33	50
20	9851	36	2161	88	6809	59	2870	80	8449	108	2496	32	40
30	9887	36	2249	88	6868	59	2789	81	8341	108	2463	33	30
40	9923	36	2337	88	6927	59	2709	80	8233	108	2431	32	20
50	9959	36	2425	88	6986	59	2629	80	8125	108	2398	33	10
4 0	0.669995	36	0.902513	88	1.347045	59	1.492549	80	1.108017	108	0.742366	32	**56** 0
10	0.670031	36	2601	88	7104	59	2469	80	7909	108	2333	33	50
20	0067	36	2689	88	7163	59	2388	81	7801	108	2301	32	40
30	0103	36	2777	88	7222	59	2308	80	7693	108	2268	33	30
40	0139	36	2865	88	7281	59	2228	80	7585	108	2236	32	20
50	0175	36	2953	88	7340	59	2148	80	7477	108	2203	33	10
5 0	0.670211	36	0.903041	88	1.347399	59	1.492068	80	1.107369	108	0.742171	32	**55** 0
10	0247	36	3129	88	7458	59	1988	80	7261	108	2138	33	50
20	0283	36	3217	88	7517	59	1908	80	7153	108	2106	32	40
30	0319	36	3305	88	7576	59	1828	80	7046	107	2073	33	30
40	0355	36	3393	88	7635	59	1748	80	6938	108	2041	32	20
50	0391	36	3481	88	7694	59	1668	80	6830	108	2008	33	10
6 0	0.670427	36	0.903569	88	1.347753	59	1.491588	80	1.106722	108	0.741976	32	**54** 0
10	0463	36	3657	88	7812	59	1508	80	6614	108	1943	33	50
20	0499	36	3745	88	7871	59	1428	80	6506	108	1911	32	40
30	0535	36	3834	89	7930	59	1348	80	6398	108	1878	33	30
40	0570	35	3922	88	7989	59	1268	80	6291	107	1846	32	20
50	0606	36	4010	88	8048	59	1188	80	6183	108	1813	33	10
7 0	0.670642	36	0.904098	88	1.348107	59	1.491108	80	1.106075	108	0.741781	32	**53** 0
10	0678	36	4186	88	8166	59	1028	80	5967	108	1748	33	50
20	0714	36	4274	88	8225	59	0948	80	5859	108	1716	32	40
30	0750	36	4362	88	8284	59	0868	80	5752	107	1683	33	30
40	0786	36	4450	88	8344	60	0788	80	5644	108	1651	32	20
50	0822	36	4539	89	8403	59	0708	80	5536	108	1618	33	10
8 0	0.670858	36	0.904627	88	1.348462	59	1.490628	80	1.105428	108	0.741586	32	**52** 0
10	0894	36	4715	88	8521	59	0548	80	5321	107	1553	33	50
20	0930	36	4803	88	8580	59	0468	80	5213	108	1521	32	40
30	0966	36	4891	88	8639	59	0388	80	5105	108	1488	33	30
40	1002	36	4979	89	8698	60	0309	79	4998	107	1456	32	20
50	1038	36	5068	88	8758	60	0229	80	4890	108	1423	33	10
9 0	0.671074	36	0.905156	88	1.348817	59	1.490149	80	1.104782	108	0.741391	32	**51** 0
10	1110	36	5244	88	8876	59	1.490069	80	4675	107	1358	33	50
20	1146	36	5332	88	8935	59	1.489989	80	4567	108	1325	33	40
30	1182	36	5420	89	8994	59	9910	79	4459	108	1293	32	30
40	1218	36	5509	88	9054	60	9830	80	4352	107	1260	33	20
50	1254	36	5597	88	9113	59	9750	80	4244	108	1228	32	10
10 0	0.671289	35	0.905685	88	1.349172	59	1.489670	80	1.104137	107	0.741195	33	**50** 0
	cos		cotg		cosec		sec		tang		sin		

32

1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

35

1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

58

1	5.8
2	11.6
3	17.4
4	23.2
5	29.0
6	34.8
7	40.6
8	46.4
9	52.2

60

1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

80

1	8.0
2	16.0
3	24.0
4	32.0
5	40.0
6	48.0
7	56.0
8	64.0
9	72.0

87

1	8.7
2	17.4
3	26.1
4	34.8
5	43.5
6	52.2
7	60.9
8	69.6
9	78.3

89

1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

108

1	10.8
2	21.6
3	32.4
4	43.2
5	54.0
6	64.8
7	75.6
8	86.4
9	97.2

42°

		sin		tang		sec		cosec		cotg		cos		
	10′ 0″	0.671289		0.905685		1.349172		1.489670		1.104137		0.741195		**50′** 0″
	10	1325	36	5773	88	9231	59	9591	79	4029	108	1163	32	50
	20	1361	36	5862	89	9291	60	9511	80	3921	108	1130	33	40
	30	1397	36	5950	88	9350	59	9431	80	3814	107	1098	32	30
	40	1433	36	6038	88	9409	59	9351	80	3706	108	1065	33	20
	50	1469	36	6126	88	9468	59	9272	79	3599	107	1033	32	10
	11 0	0.671505	36	0.906215	89	1.349528	60	1.489192	80	1.103491	108	0.741000	33	**49** 0
	10	1541	36	6303	88	9587	59	9112	80	3384	107	0967	33	50
	20	1577	36	6391	88	9646	59	9033	79	3276	108	0935	32	40
	30	1613	36	6480	89	9706	60	8953	80	3169	107	0902	33	30
	40	1649	36	6568	88	9765	59	8873	80	3061	108	0870	32	20
	50	1685	36	6656	88	9824	59	8794	79	2954	107	0837	33	10
	12 0	0.671721	36	0.906745	89	1.349884	60	1.488714	80	1.102846	108	0.740805	32	**48** 0
	10	1757	36	6833	88	1.349943	59	8635	79	2739	107	0772	33	50
	20	1792	35	6921	88	1.350002	59	8555	80	2631	108	0739	33	40
	30	1828	36	7010	89	0062	60	8475	80	2524	107	0707	32	30
	40	1864	36	7098	88	0121	59	8396	79	2417	107	0674	33	20
	50	1900	36	7186	88	0180	59	8316	80	2309	108	0642	32	10
	13 0	0.671936	36	0.907275	89	1.350240	60	1.488237	79	1.102202	107	0.740609	33	**47** 0
	10	1972	36	7363	88	0299	59	8157	80	2094	108	0577	32	50
	20	2008	36	7452	89	0359	60	8078	79	1987	107	0544	33	40
	30	2044	36	7540	88	0418	59	7998	80	1880	107	0511	33	30
	40	2080	36	7628	88	0477	59	7919	79	1772	108	0479	32	20
	50	2116	36	7717	89	0537	60	7839	80	1665	107	0446	33	10
	14 0	0.672151	35	0.907805	88	1.350596	59	1.487760	79	1.101558	107	0.740414	32	**46** 0
	10	2187	36	7894	89	0656	60	7680	80	1450	108	0381	33	50
	20	2223	36	7982	88	0715	59	7601	79	1343	107	0349	32	40
	30	2259	36	8071	89	0775	60	7522	79	1236	107	0316	33	30
	40	2295	36	8159	88	0834	59	7442	80	1129	107	0283	33	20
	50	2331	36	8248	89	0894	60	7363	79	1021	108	0251	32	10
	15 0	0.672367	36	0.908336	88	1.350953	59	1.487283	80	1.100914	107	0.740218	33	**45** 0
	10	2403	36	8425	89	1013	60	7204	79	0807	107	0186	32	50
	20	2439	36	8513	88	1072	59	7125	79	0700	107	0153	33	40
	30	2474	35	8602	89	1132	60	7045	80	0592	108	0120	33	30
	40	2510	36	8690	88	1191	59	6966	79	0485	107	0088	32	20
	50	2546	36	8779	89	1251	60	6887	79	0378	107	0055	33	10
	16 0	0.672582	36	0.908867	88	1.351310	59	1.486807	80	1.100271	107	0.740023	32	**44** 0
	10	2618	36	8956	89	1370	60	6728	79	0164	107	0.739990	33	50
	20	2654	36	9044	88	1429	59	6649	79	1.100057	107	9957	33	40
	30	2690	36	9133	89	1489	60	6569	80	1.099949	108	9925	32	30
	40	2726	36	9221	88	1548	59	6490	79	9842	107	9892	33	20
	50	2761	35	9310	89	1608	60	6411	79	9735	107	9859	33	10
	17 0	0.672797	36	0.909398	88	1.351668	60	1.486332	79	1.099628	107	0.739827	32	**43** 0
	10	2833	36	9487	89	1727	59	6252	80	9521	107	9794	33	50
	20	2869	36	9576	89	1787	60	6173	79	9414	107	9762	32	40
	30	2905	36	9664	88	1846	59	6094	79	9307	107	9729	33	30
	40	2941	36	9753	89	1906	60	6015	79	9200	107	9696	33	20
	50	2977	36	9841	88	1966	60	5936	79	9093	107	9664	32	10
	18 0	0.673013	36	0.909930	89	1.352025	59	1.485856	80	1.098986	107	0.739631	33	**42** 0
	10	3048	35	0.910019	89	2085	60	5777	79	8879	107	9598	33	50
	20	3084	36	0107	88	2145	60	5698	79	8772	107	9566	32	40
	30	3120	36	0196	89	2204	59	5619	79	8665	107	9533	33	30
	40	3156	36	0285	89	2264	60	5540	79	8558	107	9501	32	20
	50	3192	36	0373	88	2324	60	5461	79	8451	107	9468	33	10
	19 0	0.673228	36	0.910462	89	1.352383	59	1.485382	79	1.098344	107	0.739435	33	**41** 0
	10	3263	35	0551	89	2443	60	5303	79	8237	107	9403	32	50
	20	3299	36	0639	88	2503	60	5224	79	8130	107	9370	33	40
	30	3335	36	0728	89	2563	60	5144	80	8023	107	9337	33	30
	40	3371	36	0817	89	2622	59	5065	79	7916	107	9305	32	20
	50	3407	36	0905	88	2682	60	4986	79	7809	107	9272	33	10
	20 0	0.673443	36	0.910994	89	1.352742	60	1.484907	79	1.097702	107	0.739239	33	**40** 0
		cos		cotg		cosec		sec		tang		sin		

| 33 | | |

42°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.673443		0.910994		1.352742		1.484907		1.097702		0.739239		**40′** 0″
10	3479	36	1083	89	2801	59	4828	79	7595	107	9207	32	50
20	3514	35	1171	88	2861	60	4749	79	7488	107	9174	33	40
30	3550	36	1260	89	2921	60	4670	79	7381	107	9141	33	30
40	3586	36	1349	89	2981	60	4591	79	7275	106	9109	32	20
50	3622	36	1438	89	3041	60	4512	79	7168	107	9076	33	10
21 0	0.673658	36	0.911526	88	1.353100	59	1.484433	79	1.097061	107	0.739043	33	**39** 0
10	3694	36	1615	89	3160	60	4354	79	6954	107	9011	32	50
20	3729	35	1704	89	3220	60	4276	78	6847	107	8978	33	40
30	3765	36	1793	89	3280	60	4197	79	6740	107	8946	32	30
40	3801	36	1882	89	3340	60	4118	79	6634	106	8913	33	20
50	3837	36	1970	88	3399	59	4039	79	6527	107	8880	33	10
22 0	0.673873	36	0.912059	89	1.353459	60	1.483960	79	1.096420	107	0.738848	32	**38** 0
10	3908	35	2148	89	3519	60	3881	79	6313	107	8815	33	50
20	3944	36	2237	89	3579	60	3802	79	6207	106	8782	33	40
30	3980	36	2326	89	3639	60	3723	79	6100	107	8749	33	30
40	4016	36	2414	88	3699	60	3644	79	5993	107	8717	32	20
50	4052	36	2503	89	3759	60	3566	78	5886	107	8684	33	10
23 0	0.674088	36	0.912592	89	1.353818	59	1.483487	79	1.095780	106	0.738651	33	**37** 0
10	4123	35	2681	89	3878	60	3408	79	5673	107	8619	32	50
20	4159	36	2770	89	3938	60	3329	79	5566	107	8586	33	40
30	4195	36	2859	89	3998	60	3250	79	5460	106	8553	33	30
40	4231	36	2948	89	4058	60	3172	78	5353	107	8521	32	20
50	4267	36	3037	89	4118	60	3093	79	5246	107	8488	33	10
24 0	0.674302	35	0.913125	88	1.354178	60	1.483014	79	1.095140	106	0.738455	33	**36** 0
10	4338	36	3214	89	4238	60	2935	79	5033	107	8423	32	50
20	4374	36	3303	89	4298	60	2857	78	4927	106	8390	33	40
30	4410	36	3392	89	4358	60	2778	79	4820	107	8357	33	30
40	4446	36	3481	89	4418	60	2699	79	4713	107	8325	32	20
50	4481	35	3570	89	4478	60	2621	78	4607	106	8292	33	10
25 0	0.674517	36	0.913659	89	1.354538	60	1.482542	79	1.094500	107	0.738259	33	**35** 0
10	4553	36	3748	89	4598	60	2463	79	4394	106	8226	33	50
20	4589	36	3837	89	4658	60	2385	78	4287	107	8194	32	40
30	4625	36	3926	89	4718	60	2306	79	4181	106	8161	33	30
40	4660	35	4015	89	4778	60	2227	79	4074	107	8128	33	20
50	4696	36	4104	89	4838	60	2149	78	3968	106	8096	32	10
26 0	0.674732	36	0.914193	89	1.354898	60	1.482070	79	1.093861	107	0.738063	33	**34** 0
10	4768	36	4282	89	4958	60	1992	78	3755	106	8030	33	50
20	4803	35	4371	89	5018	60	1913	79	3648	107	7997	33	40
30	4839	36	4460	89	5078	60	1834	79	3542	106	7965	32	30
40	4875	36	4549	89	5138	60	1756	78	3435	107	7932	33	20
50	4911	36	4638	89	5198	60	1677	79	3329	106	7899	33	10
27 0	0.674947	36	0.914727	89	1.355258	60	1.481599	78	1.093222	107	0.737867	32	**33** 0
10	4982	35	4816	89	5319	61	1520	79	3116	106	7834	33	50
20	5018	36	4905	89	5379	60	1442	78	3009	107	7801	33	40
30	5054	36	4994	89	5439	60	1363	79	2903	106	7768	33	30
40	5090	36	5083	89	5499	60	1285	78	2797	106	7736	32	20
50	5125	35	5172	89	5559	60	1206	79	2690	107	7703	33	10
28 0	0.675161	36	0.915261	90	1.355619	60	1.481128	78	1.092584	106	0.737670	33	**32** 0
10	5197	36	5351	89	5679	60	1049	79	2478	106	7638	32	50
20	5233	36	5440	89	5740	61	0971	78	2371	107	7605	33	40
30	5268	35	5529	89	5800	60	0893	78	2265	106	7572	33	30
40	5304	36	5618	89	5860	60	0814	79	2159	106	7539	33	20
50	5340	36	5707	89	5920	60	0736	78	2052	107	7507	32	10
29 0	0.675376	36	0.915796	89	1.355980	60	1.480657	79	1.091946	106	0.737474	33	**31** 0
10	5411	35	5885	89	6041	61	0579	78	1840	106	7441	33	50
20	5447	36	5974	89	6101	60	0501	78	1733	107	7408	33	40
30	5483	36	6064	90	6161	60	0422	79	1627	106	7376	32	30
40	5519	36	6153	89	6221	60	0344	78	1521	106	7343	33	20
50	5554	35	6242	89	6281	60	0266	78	1415	106	7310	33	10
30 0	0.675590	36	0.916331	89	1.356342	61	1.480187	79	1.091309	106	0.737277	33	**30** 0
	cos		cotg		cosec		sec		tang		sin		

32		35		59		61	
1	3.2	1	3.5	1	5.9	1	6.1
2	6.4	2	7.0	2	11.8	2	12.2
3	9.6	3	10.5	3	17.7	3	18.3
4	12.8	4	14.0	4	23.6	4	24.4
5	16.0	5	17.5	5	29.5	5	30.5
6	19.2	6	21.0	6	35.4	6	36.6
7	22.4	7	24.5	7	41.3	7	42.7
8	25.6	8	28.0	8	47.2	8	48.8
9	28.8	9	31.5	9	53.1	9	54.9

78		88		90		106	
1	7.8	1	8.8	1	9.0	1	10.6
2	15.6	2	17.6	2	18.0	2	21.2
3	23.4	3	26.4	3	27.0	3	31.8
4	31.2	4	35.2	4	36.0	4	42.4
5	39.0	5	44.0	5	45.0	5	53.0
6	46.8	6	52.8	6	54.0	6	63.6
7	54.6	7	61.6	7	63.0	7	74.2
8	62.4	8	70.4	8	72.0	8	84.8
9	70.2	9	79.2	9	81.0	9	95.4

47°

42°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.675590		0.916331		1.356342		1.480187		1.091309		0.737277		**30′** 0″
10	5626	36	6420	89	6402	60	0109	78	1202	107	7245	32	50
20	5662	36	6510	90	6462	60	1.480031	78	1096	106	7212	33	40
30	5697	35	6599	89	6523	61	1.479952	79	0990	106	7179	33	30
40	5733	36	6688	89	6583	60	9874	78	0884	106	7146	33	20
50	5769	36	6777	89	6643	60	9796	78	0778	106	7114	32	10
31 0	0.675805	36	0.916866	89	1.356703	60	1.479718	78	1.090671	107	0.737081	33	**29** 0
10	5840	35	6956	90	6764	61	9639	79	0565	106	7048	33	50
20	5876	36	7045	89	6824	60	9561	78	0459	106	7015	33	40
30	5912	36	7134	89	6884	60	9483	78	0353	106	6982	33	30
40	5948	36	7223	89	6945	61	9405	78	0247	106	6950	32	20
50	5983	35	7313	90	7005	60	9326	79	0141	106	6917	33	10
32 0	0.676019	36	0.917402	89	1.357065	60	1.479248	78	1.090035	106	0.736884	33	**28** 0
10	6055	36	7491	89	7126	61	9170	78	1.089929	106	6851	33	50
20	6090	35	7581	90	7186	60	9092	78	9823	106	6819	32	40
30	6126	36	7670	89	7246	60	9014	78	9716	107	6786	33	30
40	6162	36	7759	89	7307	61	8936	78	9610	106	6753	33	20
50	6198	36	7849	90	7367	60	8858	78	9504	106	6720	33	10
33 0	0.676233	35	0.917938	89	1.357428	61	1.478779	79	1.089398	106	0.736687	33	**27** 0
10	6269	36	8027	89	7488	60	8701	78	9292	106	6655	32	50
20	6305	36	8117	90	7549	61	8623	78	9186	106	6622	33	40
30	6340	35	8206	89	7609	60	8545	78	9080	106	6589	33	30
40	6376	36	8295	89	7669	60	8467	78	8974	106	6556	33	20
50	6412	36	8385	90	7730	61	8389	78	8868	106	6524	32	10
34 0	0.676448	36	0.918474	89	1.357790	60	1.478311	78	1.088762	106	0.736491	33	**26** 0
10	6483	35	8563	89	7851	61	8233	78	8656	106	6458	33	50
20	6519	36	8653	90	7911	60	8155	78	8551	105	6425	33	40
30	6555	36	8742	89	7972	61	8077	78	8445	106	6392	33	30
40	6590	35	8832	90	8032	60	7999	78	8339	106	6360	32	20
50	6626	36	8921	89	8093	61	7921	78	8233	106	6327	33	10
35 0	0.676662	36	0.919010	89	1.358153	60	1.477843	78	1.088127	106	0.736294	33	**25** 0
10	6698	36	9100	90	8214	61	7765	78	8021	106	6261	33	50
20	6733	35	9189	89	8274	60	7687	78	7915	106	6228	33	40
30	6769	36	9279	90	8335	61	7609	78	7809	106	6196	32	30
40	6805	36	9368	89	8395	60	7531	78	7703	106	6163	33	20
50	6840	35	9458	90	8456	61	7453	78	7598	105	6130	33	10
36 0	0.676876	36	0.919547	89	1.358516	60	1.477376	77	1.087492	106	0.736097	33	**24** 0
10	6912	36	9637	90	8577	61	7298	78	7386	106	6064	33	50
20	6947	35	9726	89	8638	61	7220	78	7280	106	6031	33	40
30	6983	36	9816	90	8698	60	7142	78	7174	106	5999	32	30
40	7019	36	9905	89	8759	61	7064	78	7069	105	5966	33	20
50	7054	35	0.919995	90	8819	60	6986	78	6963	106	5933	33	10
37 0	0.677090	36	0.920084	89	1.358880	61	1.476908	78	1.086857	106	0.735900	33	**23** 0
10	7126	36	0174	90	8941	61	6831	77	6751	106	5867	33	50
20	7161	35	0263	89	9001	60	6753	78	6646	105	5835	32	40
30	7197	36	0353	90	9062	61	6675	78	6540	106	5802	33	30
40	7233	36	0442	89	9123	61	6597	78	6434	106	5769	33	20
50	7268	35	0532	90	9183	60	6519	78	6329	105	5736	33	10
38 0	0.677304	36	0.920621	89	1.359244	61	1.476442	77	1.086223	106	0.735703	33	**22** 0
10	7340	36	0711	90	9305	61	6364	78	6117	106	5670	33	50
20	7375	35	0801	90	9365	60	6286	78	6011	106	5637	33	40
30	7411	36	0890	89	9426	61	6208	78	5906	105	5605	32	30
40	7447	36	0980	90	9487	61	6131	77	5800	106	5572	33	20
50	7482	35	1069	89	9547	60	6053	78	5695	105	5539	33	10
39 0	0.677518	36	0.921159	90	1.359608	61	1.475975	78	1.085589	106	0.735506	33	**21** 0
10	7554	36	1249	90	9669	61	5898	77	5483	106	5473	33	50
20	7589	35	1338	89	9729	60	5820	78	5378	105	5440	33	40
30	7625	36	1428	90	9790	61	5742	78	5272	106	5408	32	30
40	7661	36	1518	90	9851	61	5665	77	5167	105	5375	33	20
50	7696	35	1607	89	9912	61	5587	78	5061	106	5342	33	10
40 0	0.677732	36	0.921697	90	1.359972	60	1.475509	78	1.084955	106	0.735309	33	**20** 0
	cos		cotg		cosec		sec		tang		sin		

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

60	
1	6.0
2	12.0
3	18.0
4	24.0
5	30.0
6	36.0
7	42.0
8	48.0
9	54.0

77	
1	7.7
2	15.4
3	23.1
4	30.8
5	38.5
6	46.2
7	53.9
8	61.6
9	69.3

79	
1	7.9
2	15.8
3	23.7
4	31.6
5	39.5
6	47.4
7	55.3
8	63.2
9	71.1

89	
1	8.9
2	17.8
3	26.7
4	35.6
5	44.5
6	53.4
7	62.3
8	71.2
9	80.1

105	
1	10.5
2	21.0
3	31.5
4	42.0
5	52.5
6	63.0
7	73.5
8	84.0
9	94.5

107	
1	10.7
2	21.4
3	32.1
4	42.8
5	53.5
6	64.2
7	74.9
8	85.6
9	96.3

47°

42°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.677732		0.921697		1.359972		1.475509		1.084955		0.735309		**20′** 0″
10	7768	36	1787	90	1.360033	61	5432	77	4850	105	5276	33	50
20	7803	35	1876	89	0094	61	5354	78	4744	106	5243	33	40
30	7839	36	1966	90	0155	61	5277	77	4639	105	5210	33	30
40	7875	36	2056	90	0216	61	5199	78	4533	106	5178	32	20
50	7910	35	2145	89	0276	60	5122	77	4428	105	5145	33	10
41 0	0.677946	36	0.922235	90	1.360337	61	1.475044	78	1.084322	106	0.735112	33	**19** 0
10	7982	36	2325	90	0398	61	4966	78	4217	105	5079	33	50
20	8017	35	2414	89	0459	61	4889	77	4111	106	5046	33	40
30	8053	36	2504	90	0520	61	4811	78	4006	105	5013	33	30
40	8088	35	2594	90	0581	61	4734	77	3900	106	4980	33	20
50	8124	36	2684	90	0641	60	4656	78	3795	105	4947	33	10
42 0	0.678160	36	0.922773	89	1.360702	61	1.474579	77	1.083690	105	0.734915	32	**18** 0
10	8195	35	2863	90	0763	61	4502	77	3584	106	4882	33	50
20	8231	36	2953	90	0824	61	4424	78	3479	105	4849	33	40
30	8267	36	3043	90	0885	61	4347	77	3373	106	4816	33	30
40	8302	35	3133	90	0946	61	4269	78	3268	105	4783	33	20
50	8338	36	3222	89	1007	61	4192	77	3163	105	4750	33	10
43 0	0.678373	35	0.923312	90	1.361068	61	1.474114	78	1.083057	106	0.734717	33	**17** 0
10	8409	36	3402	90	1129	61	4037	77	2952	105	4684	33	50
20	8445	36	3492	90	1190	61	3960	77	2847	105	4652	32	40
30	8480	35	3582	90	1251	61	3882	78	2741	106	4619	33	30
40	8516	36	3671	89	1312	61	3805	77	2636	105	4586	33	20
50	8551	35	3761	90	1372	60	3727	78	2531	105	4553	33	10
44 0	0.678587	36	0.923851	90	1.361433	61	1.473650	77	1.082425	106	0.734520	33	**16** 0
10	8623	36	3941	90	1494	61	3573	77	2320	105	4487	33	50
20	8658	35	4031	90	1555	61	3496	77	2215	105	4454	33	40
30	8694	36	4121	90	1616	61	3418	78	2110	105	4421	33	30
40	8730	36	4211	90	1677	61	3341	77	2004	106	4388	33	20
50	8765	35	4301	90	1738	61	3264	77	1899	105	4355	33	10
45 0	0.678801	36	0.924390	89	1.361799	61	1.473186	78	1.081794	105	0.734323	32	**15** 0
10	8836	35	4480	90	1860	61	3109	77	1689	105	4290	33	50
20	8872	36	4570	90	1922	62	3032	77	1583	106	4257	33	40
30	8908	36	4660	90	1983	61	2955	77	1478	105	4224	33	30
40	8943	35	4750	90	2044	61	2877	78	1373	105	4191	33	20
50	8979	36	4840	90	2105	61	2800	77	1268	105	4158	33	10
46 0	0.679014	35	0.924930	90	1.362166	61	1.472723	77	1.081163	105	0.734125	33	**14** 0
10	9050	36	5020	90	2227	61	2646	77	1058	105	4092	33	50
20	9086	36	5110	90	2288	61	2569	77	0953	105	4059	33	40
30	9121	35	5200	90	2349	61	2491	78	0847	106	4026	33	30
40	9157	36	5290	90	2410	61	2414	77	0742	105	3993	33	20
50	9192	35	5380	90	2471	61	2337	77	0637	105	3960	33	10
47 0	0.679228	36	0.925470	90	1.362532	61	1.472260	77	1.080532	105	0.733927	33	**13** 0
10	9263	35	5560	90	2594	62	2183	77	0427	105	3895	32	50
20	9299	36	5650	90	2655	61	2106	77	0322	105	3862	33	40
30	9335	36	5740	90	2716	61	2029	77	0217	105	3829	33	30
40	9370	35	5830	90	2777	61	1952	77	0112	105	3796	33	20
50	9406	36	5920	90	2838	61	1875	77	1.080007	105	3763	33	10
48 0	0.679441	35	0.926010	90	1.362899	61	1.471797	78	1.079902	105	0.733730	33	**12** 0
10	9477	36	6100	90	2961	62	1720	77	9797	105	3697	33	50
20	9512	35	6190	90	3022	61	1643	77	9692	105	3664	33	40
30	9548	36	6280	90	3083	61	1566	77	9587	105	3631	33	30
40	9584	36	6370	90	3144	61	1489	77	9482	105	3598	33	20
50	9619	35	6461	91	3205	61	1412	77	9377	105	3565	33	10
49 0	0.679655	36	0.926551	90	1.363267	62	1.471335	77	1.079272	105	0.733532	33	**11** 0
10	9690	35	6641	90	3328	61	1258	77	9167	105	3499	33	50
20	9726	36	6731	90	3389	61	1181	77	9062	105	3466	33	40
30	9761	35	6821	90	3450	61	1104	77	8957	105	3433	33	30
40	9797	36	6911	90	3512	62	1027	77	8852	105	3400	33	20
50	9833	36	7001	90	3573	61	0951	76	8747	105	3367	33	10
50 0	0.679868	35	0.927091	90	1.363634	61	1.470874	77	1.078642	105	0.733334	33	**10** 0
	cos		cotg		cosec		sec		tang		sin		

32	
1	3.2
2	6.4
3	9.6
4	12.8
5	16.0
6	19.2
7	22.4
8	25.6
9	28.8

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

36	
1	3.6
2	7.2
3	10.8
4	14.4
5	18.0
6	21.6
7	25.2
8	28.8
9	32.4

61	
1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

76	
1	7.6
2	15.2
3	22.8
4	30.4
5	38.0
6	45.6
7	53.2
8	60.8
9	68.4

78	
1	7.8
2	15.6
3	23.4
4	31.2
5	39.0
6	46.8
7	54.6
8	62.4
9	70.2

90	
1	9.0
2	18.0
3	27.0
4	36.0
5	45.0
6	54.0
7	63.0
8	72.0
9	81.0

104	
1	10.4
2	20.8
3	31.2
4	41.6
5	52.0
6	62.4
7	72.8
8	83.2
9	93.6

47°

42°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.679868		0.927091		1.363634		1.470874		1.078642		0.733334		**10′** 0″
10	9904	36	7182	91	3696	62	0797	77	8537	105	3301	33	50
20	9939	35	7272	90	3757	61	0720	77	8433	104	3269	32	40
30	0.679975	36	7362	90	3818	61	0643	77	8328	105	3236	33	30
40	0.680010	35	7452	90	3880	62	0566	77	8223	105	3203	33	20
50	0046	36	7542	90	3941	61	0489	77	8118	105	3170	33	10
51 0	0.680081	35	0.927632	90	1.364002	61	1.470412	77	1.078013	105	0.733137	33	**9** 0
10	0117	36	7723	91	4064	62	0335	77	7908	105	3104	33	50
20	0152	35	7813	90	4125	61	0259	76	7804	104	3071	33	40
30	0188	36	7903	90	4186	61	0182	77	7699	105	3038	33	30
40	0224	36	7993	90	4248	62	0105	77	7594	105	3005	33	20
50	0259	35	8084	91	4309	61	1.470028	77	7489	105	2972	33	10
52 0	0.680295	36	0.928174	90	1.364370	61	1.469951	77	1.077384	105	0.732939	33	**8** 0
10	0330	35	8264	90	4432	62	9875	76	7280	104	2906	33	50
20	0366	36	8354	90	4493	61	9798	77	7175	105	2873	33	40
30	0401	35	8445	91	4555	62	9721	77	7070	105	2840	33	30
40	0437	36	8535	90	4616	61	9644	77	6966	104	2807	33	20
50	0472	35	8625	90	4677	61	9568	76	6861	105	2774	33	10
53 0	0.680508	36	0.928715	90	1.364739	62	1.469491	77	1.076756	105	0.732741	33	**7** 0
10	0543	35	8806	91	4800	61	9414	77	6651	105	2708	33	50
20	0579	36	8896	90	4862	62	9338	76	6547	104	2675	33	40
30	0614	35	8986	90	4923	61	9261	77	6442	105	2642	33	30
40	0650	36	9077	91	4985	62	9184	77	6337	105	2609	33	20
50	0685	35	9167	90	5046	61	9108	76	6233	104	2576	33	10
54 0	0.680721	36	0.929257	90	1.365108	62	1.469031	77	1.076128	105	0.732543	33	**6** 0
10	0756	35	9348	91	5169	61	8954	77	6024	104	2510	33	50
20	0792	36	9438	90	5231	62	8878	76	5919	105	2477	33	40
30	0827	35	9528	90	5292	61	8801	77	5814	105	2444	33	30
40	0863	36	9619	91	5354	62	8724	77	5710	104	2411	33	20
50	0898	35	9709	90	5415	61	8648	76	5605	105	2378	33	10
55 0	0.680934	36	0.929800	91	1.365477	62	1.468571	77	1.075501	104	0.732345	33	**5** 0
10	0969	35	9890	90	5538	61	8495	76	5396	105	2312	33	50
20	1005	36	0.929980	90	5600	62	8418	77	5292	104	2279	33	40
30	1040	35	0.930071	91	5662	62	8342	76	5187	105	2246	33	30
40	1076	36	0161	90	5723	61	8265	77	5082	105	2213	33	20
50	1111	35	0252	91	5785	62	8189	76	4978	104	2180	33	10
56 0	0.681147	36	0.930342	90	1.365846	61	1.468112	77	1.074873	105	0.732147	33	**4** 0
10	1182	35	0433	91	5908	62	8036	76	4769	104	2114	33	50
20	1218	36	0523	90	5970	62	7959	77	4664	105	2081	33	40
30	1253	35	0613	90	6031	61	7883	76	4560	104	2048	33	30
40	1289	36	0704	91	6093	62	7806	77	4456	104	2015	33	20
50	1324	35	0794	90	6155	62	7730	76	4351	105	1982	33	10
57 0	0.681360	36	0.930885	91	1.366216	61	1.467653	77	1.074247	104	0.731949	33	**3** 0
10	1395	35	0975	90	6278	62	7577	76	4142	105	1916	33	50
20	1431	36	1066	91	6340	62	7500	77	4038	104	1883	33	40
30	1466	35	1156	90	6401	61	7424	76	3933	105	1849	34	30
40	1502	36	1247	91	6463	62	7348	76	3829	104	1816	33	20
50	1537	35	1337	90	6525	62	7271	77	3725	104	1783	33	10
58 0	0.681573	36	0.931428	91	1.366586	61	1.467195	76	1.073620	105	0.731750	33	**2** 0
10	1608	35	1519	91	6648	62	7118	77	3516	104	1717	33	50
20	1644	36	1609	90	6710	62	7042	76	3412	104	1684	33	40
30	1679	35	1700	91	6771	61	6966	76	3307	105	1651	33	30
40	1715	36	1790	90	6833	62	6889	77	3203	104	1618	33	20
50	1750	35	1881	91	6895	62	6813	76	3099	104	1585	33	10
59 0	0.681786	36	0.931971	90	1.366957	62	1.466737	76	1.072994	105	0.731552	33	**1** 0
10	1821	35	2062	91	7018	61	6660	77	2890	104	1519	33	50
20	1857	36	2153	91	7080	62	6584	76	2786	104	1486	33	40
30	1892	35	2243	90	7142	62	6508	76	2681	105	1453	33	30
40	1927	35	2334	91	7204	62	6432	76	2577	104	1420	33	20
50	1963	36	2424	90	7266	62	6355	77	2473	104	1387	33	10
60 0	0.681998	35	0.932515	91	1.367327	61	1.466279	76	1.072369	104	0.731354	33	**0** 0
	cos		cotg		cosec		sec		tang		sin		

33		35		60		62		77		89		91		106	
1	3.3	1	3.5	1	6.0	1	6.2	1	7.7	1	8.9	1	9.1	1	10.6
2	6.6	2	7.0	2	12.0	2	12.4	2	15.4	2	17.8	2	18.2	2	21.2
3	9.9	3	10.5	3	18.0	3	18.6	3	23.1	3	26.7	3	27.3	3	31.8
4	13.2	4	14.0	4	24.0	4	24.8	4	30.8	4	35.6	4	36.4	4	42.4
5	16.5	5	17.5	5	30.0	5	31.0	5	38.5	5	44.5	5	45.5	5	53.0
6	19.8	6	21.0	6	36.0	6	37.2	6	46.2	6	53.4	6	54.6	6	63.6
7	23.1	7	24.5	7	42.0	7	43.4	7	53.9	7	62.3	7	63.7	7	74.2
8	26.4	8	28.0	8	48.0	8	49.6	8	61.6	8	71.2	8	72.8	8	84.8
9	29.7	9	31.5	9	54.0	9	55.8	9	69.3	9	80.1	9	81.9	9	95.4

47°

43°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.681998		0.932515		1.367327		1.466279		1.072369		0.731354		**60′** 0″
10	2034	36	2606	91	7389	62	6203	76	2264	105	1321	33	50
20	2069	35	2696	90	7451	62	6127	76	2160	104	1288	33	40
30	2105	36	2787	91	7513	62	6051	76	2056	104	1255	33	30
40	2140	35	2878	91	7575	62	5974	77	1952	104	1221	34	20
50	2176	36	2968	90	7637	62	5898	76	1848	104	1188	33	10
1 0	0.682211	35	0.933059	91	1.367699	62	1.465822	76	1.071744	104	0.731155	33	**59** 0
10	2247	36	3150	91	7760	61	5746	76	1639	105	1122	33	50
20	2282	35	3240	90	7822	62	5670	76	1535	104	1089	33	40
30	2317	35	3331	91	7884	62	5594	76	1431	104	1056	33	30
40	2353	36	3422	91	7946	62	5517	77	1327	104	1023	33	20
50	2388	35	3513	91	8008	62	5441	76	1223	104	0990	33	10
2 0	0.682424	36	0.933603	90	1.368070	62	1.465365	76	1.071119	104	0.730957	33	**58** 0
10	2459	35	3694	91	8132	62	5289	76	1015	104	0924	33	50
20	2495	36	3785	91	8194	62	5213	76	0910	105	0891	33	40
30	2530	35	3876	91	8256	62	5137	76	0806	104	0858	33	30
40	2565	35	3966	90	8318	62	5061	76	0702	104	0824	34	20
50	2601	36	4057	91	8380	62	4985	76	0598	104	0791	33	10
3 0	0.682636	35	0.934148	91	1.368442	62	1.464909	76	1.070494	104	0.730758	33	**57** 0
10	2672	36	4239	91	8504	62	4833	76	0390	104	0725	33	50
20	2707	35	4330	91	8566	62	4757	76	0286	104	0692	33	40
30	2743	36	4420	90	8628	62	4681	76	0182	104	0659	33	30
40	2778	35	4511	91	8690	62	4605	76	1.070078	104	0626	33	20
50	2813	35	4602	91	8752	62	4529	76	1.069974	104	0593	33	10
4 0	0.682849	36	0.934693	91	1.368814	62	1.464453	76	1.069870	104	0.730560	33	**56** 0
10	2884	35	4784	91	8876	62	4377	76	9766	104	0527	33	50
20	2920	36	4875	91	8938	62	4301	76	9662	104	0493	34	40
30	2955	35	4965	90	9000	62	4225	76	9558	104	0460	33	30
40	2991	36	5056	91	9062	62	4149	76	9454	104	0427	33	20
50	3026	35	5147	91	9124	62	4073	76	9350	104	0394	33	10
5 0	0.683061	35	0.935238	91	1.369186	62	1.463997	76	1.069247	103	0.730361	33	**55** 0
10	3097	36	5329	91	9248	62	3921	76	9143	104	0328	33	50
20	3132	35	5420	91	9310	62	3846	75	9039	104	0295	33	40
30	3168	36	5511	91	9372	62	3770	76	8935	104	0262	33	30
40	3203	35	5602	91	9434	62	3694	76	8831	104	0229	33	20
50	3238	35	5693	91	9496	62	3618	76	8727	104	0195	34	10
6 0	0.683274	36	0.935783	90	1.369559	63	1.463542	76	1.068623	104	0.730162	33	**54** 0
10	3309	35	5874	91	9621	62	3466	76	8519	104	0129	33	50
20	3345	36	5965	91	9683	62	3391	75	8416	103	0096	33	40
30	3380	35	6056	91	9745	62	3315	76	8312	104	0063	33	30
40	3415	35	6147	91	9807	62	3239	76	8208	104	0.730030	33	20
50	3451	36	6238	91	9869	62	3163	76	8104	104	0.729997	33	10
7 0	0.683486	35	0.936329	91	1.369932	63	1.463087	76	1.068000	104	0.729963	34	**53** 0
10	3522	36	6420	91	1.369994	62	3012	75	7897	103	9930	33	50
20	3557	35	6511	91	1.370056	62	2936	76	7793	104	9897	33	40
30	3592	35	6602	91	0118	62	2860	76	7689	104	9864	33	30
40	3628	36	6693	91	0180	62	2785	75	7585	104	9831	33	20
50	3663	35	6784	91	0243	63	2709	76	7482	103	9798	33	10
8 0	0.683698	35	0.936875	91	1.370305	62	1.462633	76	1.067378	104	0.729765	33	**52** 0
10	3734	36	6966	91	0367	62	2557	76	7274	104	9731	34	50
20	3769	35	7057	91	0429	62	2482	75	7171	103	9698	33	40
30	3805	36	7148	91	0492	63	2406	76	7067	104	9665	33	30
40	3840	35	7239	91	0554	62	2330	76	6963	104	9632	33	20
50	3875	35	7331	92	0616	62	2255	75	6859	104	9599	33	10
9 0	0.683911	36	0.937422	91	1.370678	62	1.462179	76	1.066756	103	0.729566	33	**51** 0
10	3946	35	7513	91	0741	63	2104	75	6652	104	9533	33	50
20	3981	35	7604	91	0803	62	2028	76	6549	103	9499	34	40
30	4017	36	7695	91	0865	62	1952	76	6445	104	9466	33	30
40	4052	35	7786	91	0928	63	1877	75	6341	104	9433	33	20
50	4088	36	7877	91	0990	62	1801	76	6238	103	9400	33	10
10 0	0.684123	35	0.937968	91	1.371052	62	1.461726	75	1.066134	104	0.729367	33	**50** 0
	cos		cotg		cosec		sec		tang		sin		

33

1	3·3
2	6·6
3	9·9
4	13·2
5	16·5
6	19·8
7	23·1
8	26·4
9	29·7

35

1	3·5
2	7·0
3	10·5
4	14·0
5	17·5
6	21·0
7	24·5
8	28·0
9	31·5

61

1	6.1
2	12.2
3	18.3
4	24.4
5	30.5
6	36.6
7	42.7
8	48.8
9	54.9

63

1	6·3
2	12·6
3	18·9
4	25·2
5	31·5
6	37·8
7	44·1
8	50·4
9	56·7

75

1	7·5
2	15·0
3	22·5
4	30·0
5	37·5
6	45·0
7	52·5
8	60·0
9	67·5

77

1	7·7
2	15·4
3	23·1
4	30·8
5	38·5
6	46·2
7	53·9
8	61·6
9	69·3

91

1	9·1
2	18·2
3	27·3
4	36·4
5	45·5
6	54·6
7	63·7
8	72·8
9	81·9

103

1	10·3
2	20·6
3	30·9
4	41·2
5	51·5
6	61·8
7	72·1
8	82·4
9	92·7

46°

43°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.684123		0.937968		1.371052		1.461726		1.066134		0.729367		**50′** 0″
10	4158	35	8059	91	1115	63	1650	76	6031	103	9334	33	50
20	4194	36	8151	92	1177	62	1575	75	5927	104	9300	34	40
30	4229	35	8242	91	1239	62	1499	76	5823	104	9267	33	30
40	4264	35	8333	91	1302	63	1424	75	5720	103	9234	33	20
50	4300	36	8424	91	1364	62	1348	76	5616	104	9201	33	10
11 0	0.684335	35	0.938515	91	1.371427	63	1.461273	75	1.065513	103	0.729168	33	**49** 0
10	4370	35	8606	91	1489	62	1197	76	5409	104	9135	33	50
20	4406	36	8698	92	1551	62	1122	75	5306	103	9101	34	40
30	4441	35	8789	91	1614	63	1046	76	5202	104	9068	33	30
40	4476	35	8880	91	1676	62	0971	75	5099	103	9035	33	20
50	4512	36	8971	91	1739	63	0895	76	4995	104	9002	33	10
12 0	0.684547	35	0.939063	92	1.371801	62	1.460820	75	1.064892	103	0.728969	33	**48** 0
10	4582	35	9154	91	1864	63	0744	76	4788	104	8935	34	50
20	4618	36	9245	91	1926	62	0669	75	4685	103	8902	33	40
30	4653	35	9336	91	1989	63	0594	75	4582	103	8869	33	30
40	4688	35	9428	92	2051	62	0518	76	4478	104	8836	33	20
50	4724	36	9519	91	2114	63	0443	75	4375	103	8803	33	10
13 0	0.684759	35	0.939610	91	1.372176	62	1.460368	75	1.064271	104	0.728769	34	**47** 0
10	4794	35	9701	91	2239	63	0292	76	4168	103	8736	33	50
20	4830	36	9793	92	2301	62	0217	75	4065	103	8703	33	40
30	4865	35	9884	91	2364	63	0142	75	3961	104	8670	33	30
40	4900	35	0.939975	91	2426	62	1.460066	76	3858	103	8637	33	20
50	4936	36	0.940067	92	2489	63	1.459991	75	3754	104	8603	34	10
14 0	0.684971	35	0.940158	91	1.372551	62	1.459916	75	1.063651	103	0.728570	33	**46** 0
10	5006	35	0249	91	2614	63	9840	76	3548	103	8537	33	50
20	5042	36	0341	92	2676	62	9765	75	3444	104	8504	33	40
30	5077	35	0432	91	2739	63	9690	75	3341	103	8471	33	30
40	5112	35	0523	91	2802	63	9615	75	3238	103	8437	34	20
50	5148	36	0615	92	2864	62	9539	76	3135	103	8404	33	10
15 0	0.685183	35	0.940706	91	1.372927	63	1.459464	75	1.063031	104	0.728371	33	**45** 0
10	5218	35	0797	91	2989	62	9389	75	2928	103	8338	33	50
20	5254	36	0889	92	3052	63	9314	75	2825	103	8305	33	40
30	5289	35	0980	91	3115	63	9239	75	2722	103	8271	34	30
40	5324	35	1072	92	3177	62	9163	76	2618	104	8238	33	20
50	5360	36	1163	91	3240	63	9088	75	2515	103	8205	33	10
16 0	0.685395	35	0.941255	92	1.373303	63	1.459013	75	1.062412	103	0.728172	33	**44** 0
10	5430	35	1346	91	3365	62	8938	75	2309	103	8138	34	50
20	5465	35	1437	91	3428	63	8863	75	2206	103	8105	33	40
30	5501	36	1529	92	3491	63	8788	75	2102	104	8072	33	30
40	5536	35	1620	91	3553	62	8713	75	1999	103	8039	33	20
50	5571	35	1712	92	3616	63	8637	76	1896	103	8005	34	10
17 0	0.685607	36	0.941803	91	1.373679	63	1.458562	75	1.061793	103	0.727972	33	**43** 0
10	5642	35	1895	92	3742	63	8487	75	1690	103	7939	33	50
20	5677	35	1986	91	3804	62	8412	75	1587	103	7906	33	40
30	5712	35	2078	92	3867	63	8337	75	1483	104	7872	34	30
40	5748	36	2169	91	3930	63	8262	75	1380	103	7839	33	20
50	5783	35	2261	92	3993	63	8187	75	1277	103	7806	33	10
18 0	0.685818	35	0.942352	91	1.374055	62	1.458112	75	1.061174	103	0.727773	33	**42** 0
10	5854	36	2444	92	4118	63	8037	75	1071	103	7740	33	50
20	5889	35	2535	91	4181	63	7962	75	0968	103	7706	34	40
30	5924	35	2627	92	4244	63	7887	75	0865	103	7673	33	30
40	5959	35	2719	92	4306	62	7812	75	0762	103	7640	33	20
50	5995	36	2810	91	4369	63	7737	75	0659	103	7606	34	10
19 0	0.686030	35	0.942902	92	1.374432	63	1.457662	75	1.060556	103	0.727573	33	**41** 0
10	6065	35	2993	91	4495	63	7587	75	0453	103	7540	33	50
20	6101	36	3085	92	4558	63	7512	75	0350	103	7507	33	40
30	6136	35	3176	91	4621	63	7437	75	0247	103	7473	34	30
40	6171	35	3268	92	4683	62	7362	75	0144	103	7440	33	20
50	6206	35	3360	92	4746	63	7288	74	1.060041	103	7407	33	10
20 0	0.686242	36	0.943451	91	1.374809	63	1.457213	75	1.059938	103	0.727374	33	**40** 0
	cos		cotg		cosec		sec		tang		sin		

34		36		62		74		76		90		92		105	
1	3.4	1	3.6	1	6.2	1	7.4	1	7.6	1	9.0	1	9.2	1	10.5
2	6.8	2	7.2	2	12.4	2	14.8	2	15.2	2	18.0	2	18.4	2	21.0
3	10.2	3	10.8	3	18.6	3	22.2	3	22.8	3	27.0	3	27.6	3	31.5
4	13.6	4	14.4	4	24.8	4	29.6	4	30.4	4	36.0	4	36.8	4	42.0
5	17.0	5	18.0	5	31.0	5	37.0	5	38.0	5	45.0	5	46.0	5	52.5
6	20.4	6	21.6	6	37.2	6	44.4	6	45.6	6	54.0	6	55.2	6	63.0
7	23.8	7	25.2	7	43.4	7	51.8	7	53.2	7	63.0	7	64.4	7	73.5
8	27.2	8	28.8	8	49.6	8	59.2	8	60.8	8	72.0	8	73.6	8	84.0
9	30.6	9	32.4	9	55.8	9	66.6	9	68.4	9	81.0	9	82.8	9	94.5

46°

43°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.686242		0.943451		1.374809		1.457213		1.059938		0.727374		**40′** 0″
10	6277	35	3543	92	4872	63	7138	75	9835	103	7340	34	50
20	6312	35	3635	92	4935	63	7063	75	9732	103	7307	33	40
30	6347	35	3726	91	4998	63	6988	75	9629	103	7274	33	30
40	6383	36	3818	92	5061	63	6913	75	9526	103	7241	33	20
50	6418	35	3910	92	5124	63	6838	75	9423	103	7207	34	10
21 0	0.686453	35	0.944001	91	1.375187	63	1.456764	74	1.059321	102	0.727174	33	**39** 0
10	6488	35	4093	92	5250	63	6689	75	9218	103	7141	33	50
20	6524	36	4185	92	5313	63	6614	75	9115	103	7107	34	40
30	6559	35	4276	91	5376	63	6539	75	9012	103	7074	33	30
40	6594	35	4368	92	5439	63	6464	75	8909	103	7041	33	20
50	6629	35	4460	92	5501	62	6390	74	8806	103	7008	33	10
22 0	0.686665	36	0.944552	92	1.375564	63	1.456315	75	1.058703	103	0.726974	34	**38** 0
10	6700	35	4643	91	5627	63	6240	75	8601	102	6941	33	50
20	6735	35	4735	92	5690	63	6165	75	8498	103	6908	33	40
30	6770	35	4827	92	5753	63	6091	74	8395	103	6874	34	30
40	6806	36	4919	92	5817	64	6016	75	8292	103	6841	33	20
50	6841	35	5010	91	5880	63	5941	75	8189	103	6808	33	10
23 0	0.686876	35	0.945102	92	1.375943	63	1.455867	74	1.058087	102	0.726775	33	**37** 0
10	6911	35	5194	92	6006	63	5792	75	7984	103	6741	34	50
20	6947	36	5286	92	6069	63	5717	75	7881	103	6708	33	40
30	6982	35	5378	92	6132	63	5643	74	7778	103	6675	33	30
40	7017	35	5469	91	6195	63	5568	75	7676	102	6641	34	20
50	7052	35	5561	92	6258	63	5493	75	7573	103	6608	33	10
24 0	0.687088	36	0.945653	92	1.376321	63	1.455419	74	1.057470	103	0.726575	33	**36** 0
10	7123	35	5745	92	6384	63	5344	75	7368	102	6541	34	50
20	7158	35	5837	92	6447	63	5269	75	7265	103	6508	33	40
30	7193	35	5929	92	6510	63	5195	74	7162	103	6475	33	30
40	7228	35	6020	91	6574	64	5120	75	7060	102	6441	34	20
50	7264	36	6112	92	6637	63	5046	74	6957	103	6408	33	10
25 0	0.687299	35	0.946204	92	1.376700	63	1.454971	75	1.056854	103	0.726375	33	**35** 0
10	7334	35	6296	92	6763	63	4897	74	6752	102	6341	34	50
20	7369	35	6388	92	6826	63	4822	75	6649	103	6308	33	40
30	7404	35	6480	92	6889	63	4748	74	6547	102	6275	33	30
40	7440	36	6572	92	6952	63	4673	75	6444	103	6241	34	20
50	7475	35	6664	92	7016	64	4599	74	6341	103	6208	33	10
26 0	0.687510	35	0.946756	92	1.377079	63	1.454524	75	1.056239	102	0.726175	33	**34** 0
10	7545	35	6848	92	7142	63	4450	74	6136	103	6141	34	50
20	7581	36	6940	92	7205	63	4375	75	6034	102	6108	33	40
30	7616	35	7031	91	7269	64	4301	74	5931	103	6075	33	30
40	7651	35	7123	92	7332	63	4226	75	5829	102	6041	34	20
50	7686	35	7215	92	7395	63	4152	74	5726	103	6008	33	10
27 0	0.687721	35	0.947307	92	1.377458	63	1.454077	75	1.055624	102	0.725975	33	**33** 0
10	7757	36	7399	92	7522	64	4003	74	5521	103	5941	34	50
20	7792	35	7491	92	7585	63	3929	74	5419	102	5908	33	40
30	7827	35	7583	92	7648	63	3854	75	5316	103	5875	33	30
40	7862	35	7675	92	7711	63	3780	74	5214	102	5841	34	20
50	7897	35	7767	92	7775	64	3705	75	5111	103	5808	33	10
28 0	0.687932	35	0.947859	92	1.377838	63	1.453631	74	1.055009	102	0.725775	33	**32** 0
10	7968	36	7952	93	7901	63	3557	74	4906	103	5741	34	50
20	8003	35	8044	92	7965	64	3482	75	4804	102	5708	33	40
30	8038	35	8136	92	8028	63	3408	74	4701	103	5675	33	30
40	8073	35	8228	92	8091	63	3334	74	4599	102	5641	34	20
50	8108	35	8320	92	8155	64	3259	75	4497	102	5608	33	10
29 0	0.688144	36	0.948412	92	1.378218	63	1.453185	74	1.054394	103	0.725575	33	**31** 0
10	8179	35	8504	92	8281	63	3111	74	4292	102	5541	34	50
20	8214	35	8596	92	8345	64	3037	74	4189	103	5508	33	40
30	8249	35	8688	92	8408	63	2962	75	4087	102	5474	34	30
40	8284	35	8780	92	8472	64	2888	74	3985	102	5441	33	20
50	8319	35	8872	92	8535	63	2814	74	3882	103	5408	33	10
30 0	0.688355	36	0.948965	93	1.378598	63	1.452740	74	1.053780	102	0.725374	34	**30** 0
	cos		cotg		cosec		sec		tang		sin		

33	
1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

35	
1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

62	
1	6.2
2	12.4
3	18.6
4	24.8
5	31.0
6	37.2
7	43.4
8	49.6
9	55.8

64	
1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

74	
1	7.4
2	14.8
3	22.2
4	29.6
5	37.0
6	44.4
7	51.8
8	59.2
9	66.6

91	
1	9.1
2	18.2
3	27.3
4	36.4
5	45.5
6	54.6
7	63.7
8	72.8
9	81.9

93	
1	9.3
2	18.6
3	27.9
4	37.2
5	46.5
6	55.8
7	65.1
8	74.4
9	83.7

102	
1	10.2
2	20.4
3	30.6
4	40.8
5	51.0
6	61.2
7	71.4
8	81.6
9	91.8

46°

43°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.688355		0.948965		1.378598		1.452740		1.053780		0.725374		**30′** 0″
10	8390	35	9057	92	8662	64	2665	75	3678	102	5341	33	50
20	8425	35	9149	92	8725	63	2591	74	3576	102	5308	33	40
30	8460	35	9241	92	8789	64	2517	74	3473	103	5274	34	30
40	8495	35	9333	92	8852	63	2443	74	3371	102	5241	33	20
50	8530	35	9425	92	8916	64	2369	74	3269	102	5207	34	10
31 0	0.688566	36	0.949518	93	1.378979	63	1.452295	74	1.053166	103	0.725174	33	**29** 0
10	8601	35	9610	92	9043	64	2220	75	3064	102	5141	33	50
20	8636	35	9702	92	9106	63	2146	74	2962	102	5107	34	40
30	8671	35	9794	92	9170	64	2072	74	2860	102	5074	33	30
40	8706	35	9886	92	9233	63	1998	74	2757	103	5041	33	20
50	8741	35	0.949979	93	9297	64	1924	74	2655	102	5007	34	10
32 0	0.688776	35	0.950071	92	1.379360	63	1.451850	74	1.052553	102	0.724974	33	**28** 0
10	8812	36	0163	92	9424	64	1776	74	2451	102	4940	34	50
20	8847	35	0255	92	9487	63	1702	74	2349	102	4907	33	40
30	8882	35	0348	93	9551	64	1628	74	2247	102	4874	33	30
40	8917	35	0440	92	9614	63	1554	74	2144	103	4840	34	20
50	8952	35	0532	92	9678	64	1480	74	2042	102	4807	33	10
33 0	0.688987	35	0.950624	92	1.379742	64	1.451406	74	1.051940	102	0.724773	34	**27** 0
10	9022	35	0717	93	9805	63	1332	74	1838	102	4740	33	50
20	9058	36	0809	92	9869	64	1257	75	1736	102	4707	33	40
30	9093	35	0901	92	9932	63	1184	73	1634	102	4673	34	30
40	9128	35	0994	93	1.379996	64	1110	74	1532	102	4640	33	20
50	9163	35	1086	92	1.380060	64	1036	74	1430	102	4606	34	10
34 0	0.689198	35	0.951178	92	1.380123	63	1.450962	74	1.051328	102	0.724573	33	**26** 0
10	9233	35	1271	93	0187	64	0888	74	1225	103	4540	33	50
20	9268	35	1363	92	0251	64	0814	74	1123	102	4506	34	40
30	9303	35	1455	92	0314	63	0740	74	1021	102	4473	33	30
40	9339	36	1548	93	0378	64	0666	74	0919	102	4439	34	20
50	9374	35	1640	92	0442	64	0592	74	0817	102	4406	33	10
35 0	0.689409	35	0.951733	93	1.380505	63	1.450518	74	1.050715	102	0.724372	34	**25** 0
10	9444	35	1825	92	0569	64	0444	74	0613	102	4339	33	50
20	9479	35	1917	92	0633	64	0370	74	0511	102	4306	33	40
30	9514	35	2010	93	0696	63	0296	74	0409	102	4272	34	30
40	9549	35	2102	92	0760	64	0223	73	0307	102	4239	33	20
50	9584	35	2195	93	0824	64	0149	74	0205	102	4205	34	10
36 0	0.689620	36	0.952287	92	1.380888	64	1.450075	74	1.050103	102	0.724172	33	**24** 0
10	9655	35	2380	93	0951	63	1.450001	74	1.050002	101	4138	34	50
20	9690	35	2472	92	1015	64	1.449927	74	1.049900	102	4105	33	40
30	9725	35	2565	93	1079	64	9853	74	9798	102	4072	33	30
40	9760	35	2657	92	1143	64	9780	73	9696	102	4038	34	20
50	9795	35	2749	92	1207	64	9706	74	9594	102	4005	33	10
37 0	0.689830	35	0.952842	93	1.381270	63	1.449632	74	1.049492	102	0.723971	34	**23** 0
10	9865	35	2934	92	1334	64	9558	74	9390	102	3938	33	50
20	9900	35	3027	93	1398	64	9485	73	9288	102	3904	34	40
30	9935	35	3119	92	1462	64	9411	74	9186	102	3871	33	30
40	0.689971	36	3212	93	1526	64	9337	74	9085	101	3837	34	20
50	0.690006	35	3305	93	1590	64	9264	73	8983	102	3804	33	10
38 0	0.690041	35	0.953397	92	1.381653	63	1.449190	74	1.048881	102	0.723771	33	**22** 0
10	0076	35	3490	93	1717	64	9116	74	8779	102	3737	34	50
20	0111	35	3582	92	1781	64	9042	74	8677	102	3704	33	40
30	0146	35	3675	93	1845	64	8969	73	8575	102	3670	34	30
40	0181	35	3767	92	1909	64	8895	74	8474	101	3637	33	20
50	0216	35	3860	93	1973	64	8821	74	8372	102	3603	34	10
39 0	0.690251	35	0.953953	93	1.382037	64	1.448748	73	1.048270	102	0.723570	33	**21** 0
10	0286	35	4045	92	2101	64	8674	74	8168	102	3536	34	50
20	0321	35	4138	93	2165	64	8601	73	8067	101	3503	33	40
30	0356	35	4230	92	2229	64	8527	74	7965	102	3469	34	30
40	0392	36	4323	93	2292	63	8453	74	7863	102	3436	33	20
50	0427	35	4416	93	2356	64	8380	73	7762	101	3402	34	10
40 0	0.690462	35	0.954508	92	1.382420	64	1.448306	74	1.047660	102	0.723369	33	**20** 0
	cos		cotg		cosec		sec		tang		sin		

34		36		63		73		75		92		101		103	
1	3.4	1	3.6	1	6.3	1	7.3	1	7.5	1	9.2	1	10.1	1	10.3
2	6.8	2	7.2	2	12.6	2	14.6	2	15.0	2	18.4	2	20.2	2	20.6
3	10.2	3	10.8	3	18.9	3	21.9	3	22.5	3	27.6	3	30.3	3	30.9
4	13.6	4	14.4	4	25.2	4	29.2	4	30.0	4	36.8	4	40.4	4	41.2
5	17.0	5	18.0	5	31.5	5	36.5	5	37.5	5	46.0	5	50.5	5	51.5
6	20.4	6	21.6	6	37.8	6	43.8	6	45.0	6	55.2	6	60.6	6	61.8
7	23.8	7	25.2	7	44.1	7	51.1	7	52.5	7	64.4	7	70.7	7	72.1
8	27.2	8	28.8	8	50.4	8	58.4	8	60.0	8	73.6	8	80.8	8	82.4
9	30.6	9	32.4	9	56.7	9	65.7	9	67.5	9	82.8	9	90.9	9	92.7

46°

43°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.690462		0.954508		1.382420		1.448306		1.047660		0.723369		**20′** 0″
10	0497	35	4601	93	2484	64	8233	73	7558	102	3335	34	50
20	0532	35	4694	93	2548	64	8159	74	7456	102	3302	33	40
30	0567	35	4786	92	2612	64	8086	73	7355	101	3269	33	30
40	0602	35	4879	93	2676	64	8012	74	7253	102	3235	34	20
50	0637	35	4972	93	2740	64	7939	73	7151	102	3202	33	10
41 0	0.690672	35	0.955064	92	1.382804	64	1.447865	74	1.047050	101	0.723168	34	**19** 0
10	0707	35	5157	93	2868	64	7792	73	6948	102	3135	33	50
20	0742	35	5250	93	2932	64	7718	74	6847	101	3101	34	40
30	0777	35	5343	93	2997	65	7645	73	6745	102	3068	33	30
40	0812	35	5435	92	3061	64	7571	74	6643	102	3034	34	20
50	0847	35	5528	93	3125	64	7498	73	6542	101	3001	33	10
42 0	0.690882	35	0.955621	93	1.383189	64	1.447424	74	1.046440	102	0.722967	34	**18** 0
10	0917	35	5714	93	3253	64	7351	73	6339	101	2934	33	50
20	0953	36	5806	92	3317	64	7277	74	6237	102	2900	34	40
30	0988	35	5899	93	3381	64	7204	73	6136	101	2867	33	30
40	1023	35	5992	93	3445	64	7131	73	6034	102	2833	34	20
50	1058	35	6085	93	3509	64	7057	74	5933	101	2800	33	10
43 0	0.691093	35	0.956177	92	1.383573	64	1.446984	73	1.045831	102	0.722766	34	**17** 0
10	1128	35	6270	93	3638	65	6911	73	5729	102	2733	33	50
20	1163	35	6363	93	3702	64	6837	74	5628	101	2699	34	40
30	1198	35	6456	93	3766	64	6764	73	5527	101	2666	33	30
40	1233	35	6549	93	3830	64	6691	73	5425	102	2632	34	20
50	1268	35	6642	93	3894	64	6617	74	5324	101	2599	33	10
44 0	0.691303	35	0.956734	92	1.383958	64	1.446544	73	1.045222	102	0.722565	34	**16** 0
10	1338	35	6827	93	4023	65	6471	73	5121	101	2532	33	50
20	1373	35	6920	93	4087	64	6397	74	5019	102	2498	34	40
30	1408	35	7013	93	4151	64	6324	73	4918	101	2465	33	30
40	1443	35	7106	93	4215	64	6251	73	4816	102	2431	34	20
50	1478	35	7199	93	4279	64	6178	73	4715	101	2397	34	10
45 0	0.691513	35	0.957292	93	1.384344	65	1.446104	74	1.044614	101	0.722364	33	**15** 0
10	1548	35	7385	93	4408	64	6031	73	4512	102	2330	34	50
20	1583	35	7478	93	4472	64	5958	73	4411	101	2297	33	40
30	1618	35	7571	93	4536	64	5885	73	4310	101	2263	34	30
40	1653	35	7663	92	4601	65	5811	74	4208	102	2230	33	20
50	1688	35	7756	93	4665	64	5738	73	4107	101	2196	34	10
46 0	0.691723	35	0.957849	93	1.384729	64	1.445665	73	1.044006	101	0.722163	33	**14** 0
10	1758	35	7942	93	4794	65	5592	73	3904	102	2129	34	50
20	1793	35	8035	93	4858	64	5519	73	3803	101	2096	33	40
30	1828	35	8128	93	4922	64	5446	73	3702	101	2062	34	30
40	1863	35	8221	93	4987	65	5372	74	3600	102	2029	33	20
50	1898	35	8314	93	5051	64	5299	73	3499	101	1995	34	10
47 0	0.691933	35	0.958407	93	1.385115	64	1.445226	73	1.043398	101	0.721962	33	**13** 0
10	1968	35	8500	93	5180	65	5153	73	3296	102	1928	34	50
20	2003	35	8593	93	5244	64	5080	73	3195	101	1894	34	40
30	2038	35	8686	93	5308	64	5007	73	3094	101	1861	33	30
40	2073	35	8779	93	5373	65	4934	73	2993	101	1827	34	20
50	2108	35	8872	93	5437	64	4861	73	2892	101	1794	33	10
48 0	0.692143	35	0.958966	94	1.385502	65	1.444788	73	1.042790	102	0.721760	34	**12** 0
10	2178	35	9059	93	5566	64	4715	73	2689	101	1727	33	50
20	2213	35	9152	93	5631	65	4642	73	2588	101	1693	34	40
30	2248	35	9245	93	5695	64	4569	73	2487	101	1660	33	30
40	2283	35	9338	93	5759	64	4496	73	2386	101	1626	34	20
50	2318	35	9431	93	5824	65	4423	73	2284	102	1592	34	10
49 0	0.692353	35	0.959524	93	1.385888	64	1.444350	73	1.042183	101	0.721559	33	**11** 0
10	2388	35	9617	93	5953	65	4277	73	2082	101	1525	34	50
20	2423	35	9710	93	6017	64	4204	73	1981	101	1492	33	40
30	2458	35	9803	93	6082	65	4131	73	1880	101	1458	34	30
40	2493	35	9897	94	6146	64	4058	73	1779	101	1425	33	20
50	2528	35	0.959990	93	6211	65	3985	73	1678	101	1391	34	10
50 0	0.692563	35	0.960083	93	1.386275	64	1.443912	73	1.041577	101	0.721357	34	**10** 0
	cos		cotg		cosec		sec		tang		sin		

33

1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

35

1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

64

1	6.4
2	12.8
3	19.2
4	25.6
5	32.0
6	38.4
7	44.8
8	51.2
9	57.6

66

1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

73

1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

92

1	9.2
2	18.4
3	27.6
4	36.8
5	46.0
6	55.2
7	64.4
8	73.6
9	82.8

94

1	9.4
2	18.8
3	28.2
4	37.6
5	47.0
6	56.4
7	65.8
8	75.2
9	84.6

101

1	10.1
2	20.2
3	30.3
4	40.4
5	50.5
6	60.6
7	70.7
8	80.8
9	90.9

46°

43°

	sin		tang		sec		cosec		cotg		cos		
50′ 0″	0.692563		0.960083		1.386275		1.443912		1.041577		0.721357		**10′** 0″
10	2598	35	0176	93	6340	65	3839	73	1476	101	1324	33	50
20	2633	35	0269	93	6404	64	3766	73	1375	101	1290	34	40
30	2668	35	0362	93	6469	65	3693	73	1273	102	1257	33	30
40	2703	35	0456	94	6533	64	3620	73	1172	101	1223	34	20
50	2738	35	0549	93	6598	65	3548	72	1071	101	1190	33	10
51 0	0.692773	35	0.960642	93	1.386663	65	1.443475	73	1.040970	101	0.721156	34	**9** 0
10	2808	35	0735	93	6727	64	3402	73	0869	101	1122	34	50
20	2843	35	0829	94	6792	65	3329	73	0768	101	1089	33	40
30	2878	35	0922	93	6856	64	3256	73	0667	101	1055	34	30
40	2913	35	1015	93	6921	65	3183	73	0566	101	1022	33	20
50	2948	35	1108	93	6986	65	3111	72	0465	101	0988	34	10
52 0	0.692983	35	0.961202	94	1.387050	64	1.443038	73	1.040364	101	0.720954	34	**8** 0
10	3017	34	1295	93	7115	65	2965	73	0264	100	0921	33	50
20	3052	35	1388	93	7180	65	2892	73	0163	101	0887	34	40
30	3087	35	1481	93	7244	64	2820	72	1.040062	101	0854	33	30
40	3122	35	1575	94	7309	65	2747	73	1.039961	101	0820	34	20
50	3157	35	1668	93	7374	65	2674	73	9860	101	0786	34	10
53 0	0.693192	35	0.961761	93	1.387438	64	1.442601	73	1.039759	101	0.720753	33	**7** 0
10	3227	35	1855	94	7503	65	2529	72	9658	101	0719	34	50
20	3262	35	1948	93	7568	65	2456	73	9557	101	0686	33	40
30	3297	35	2041	93	7632	64	2383	73	9456	101	0652	34	30
40	3332	35	2135	94	7697	65	2311	72	9355	101	0618	34	20
50	3367	35	2228	93	7762	65	2238	73	9255	100	0585	33	10
54 0	0.693402	35	0.962322	94	1.387827	65	1.442165	73	1.039154	101	0.720551	34	**6** 0
10	3437	35	2415	93	7891	64	2093	72	9053	101	0517	34	50
20	3472	35	2508	93	7956	65	2020	73	8952	101	0484	33	40
30	3507	35	2602	94	8021	65	1947	73	8851	101	0450	34	30
40	3542	35	2695	93	8086	65	1875	72	8750	101	0417	33	20
50	3576	34	2789	94	8150	64	1802	73	8650	100	0383	34	10
55 0	0.693611	35	0.962882	93	1.388215	65	1.441729	73	1.038549	101	0.720349	34	**5** 0
10	3646	35	2975	93	8280	65	1657	72	8448	101	0316	33	50
20	3681	35	3069	94	8345	65	1584	73	8347	101	0282	34	40
30	3716	35	3162	93	8410	65	1512	72	8247	100	0248	34	30
40	3751	35	3256	94	8475	65	1439	73	8146	101	0215	33	20
50	3786	35	3349	93	8539	64	1367	72	8045	101	0181	34	10
56 0	0.693821	35	0.963443	94	1.388604	65	1.441294	73	1.037944	101	0.720148	33	**4** 0
10	3856	35	3536	93	8669	65	1222	72	7844	100	0114	34	50
20	3891	35	3630	94	8734	65	1149	73	7743	101	0080	34	40
30	3926	35	3723	93	8799	65	1077	72	7642	101	0047	33	30
40	3961	35	3817	94	8864	65	1004	73	7542	100	0.720013	34	20
50	3995	34	3910	93	8929	65	0932	72	7441	101	0.719979	34	10
57 0	0.694030	35	0.964004	94	1.388994	65	1.440859	73	1.037340	101	0.719946	33	**3** 0
10	4065	35	4097	93	9059	65	0787	72	7240	100	9912	34	50
20	4100	35	4191	94	9123	64	0714	73	7139	101	9878	34	40
30	4135	35	4284	93	9188	65	0642	72	7038	101	9845	33	30
40	4170	35	4378	94	9253	65	0569	73	6938	100	9811	34	20
50	4205	35	4472	94	9318	65	0497	72	6837	101	9777	34	10
58 0	0.694240	35	0.964565	93	1.389383	65	1.440425	72	1.036737	100	0.719744	33	**2** 0
10	4275	35	4659	94	9448	65	0352	73	6636	101	9710	34	50
20	4310	35	4752	93	9513	65	0280	72	6536	100	9676	34	40
30	4344	34	4846	94	9578	65	0207	73	6435	101	9643	33	30
40	4379	35	4940	94	9643	65	0135	72	6334	101	9609	34	20
50	4414	35	5033	93	9708	65	1.440063	72	6234	100	9576	33	10
59 0	0.694449	35	0.965127	94	1.389773	65	1.439990	73	1.036133	101	0.719542	34	**1** 0
10	4484	35	5220	93	9838	65	9918	72	6033	100	9508	34	50
20	4519	35	5314	94	9903	65	9846	72	5932	101	9474	34	40
30	4554	35	5408	94	1.389968	65	9773	73	5832	100	9441	33	30
40	4589	35	5501	93	1.390033	66	9701	72	5731	101	9407	34	20
50	4623	34	5595	94	0099		9629	72	5631	100	9373	34	10
60 0	0.694658	35	0.965689	94	1.390164	65	1.439557	72	1.035530	101	0.719340	33	**0** 0
	cos		cotg		cosec		sec		tang		sin		

34		36		65		72		74		93		100		102	
1	3.4	1	3.6	1	6.5	1	7.2	1	7.4	1	9.3	1	10.0	1	10.2
2	6.8	2	7.2	2	13.0	2	14.4	2	14.8	2	18.6	2	20.0	2	20.4
3	10.2	3	10.8	3	19.5	3	21.6	3	22.2	3	27.9	3	30.0	3	30.6
4	13.6	4	14.4	4	26.0	4	28.8	4	29.6	4	37.2	4	40.0	4	40.8
5	17.0	5	18.0	5	32.5	5	36.0	5	37.0	5	46.5	5	50.0	5	51.0
6	20.4	6	21.6	6	39.0	6	43.2	6	44.4	6	55.8	6	60.0	6	61.2
7	23.8	7	25.2	7	45.5	7	50.4	7	51.8	7	65.1	7	70.0	7	71.4
8	27.2	8	28.8	8	52.0	8	57.6	8	59.2	8	74.4	8	80.0	8	81.6
9	30.6	9	32.4	9	58.5	9	64.8	9	66.6	9	83.7	9	90.0	9	91.8

46°

44°

	sin		tang		sec		cosec		cotg		cos		
0′ 0″	0.694658		0.965689		1.390164		1.439557		1.035530		0.719340		**60′** 0″
10	4693	35	5782	93	0229	65	9484	73	5430	100	9306	34	50
20	4728	35	5876	94	0294	65	9412	72	5329	101	9272	34	40
30	4763	35	5970	94	0359	65	9340	72	5229	100	9239	33	30
40	4798	35	6064	94	0424	65	9268	72	5129	100	9205	34	20
50	4833	35	6157	93	0489	65	9195	73	5028	101	9171	34	10
1 0	0.694868	35	0.966251	94	1.390554	65	1.439123	72	1.034928	100	0.719138	33	**59** 0
10	4902	34	6345	94	0619	65	9051	72	4827	101	9104	34	50
20	4937	35	6439	94	0685	66	8979	72	4727	100	9070	34	40
30	4972	35	6532	93	0750	65	8907	72	4627	100	9037	33	30
40	5007	35	6626	94	0815	65	8834	73	4526	101	9003	34	20
50	5042	35	6720	94	0880	65	8762	72	4426	100	8969	34	10
2 0	0.695077	35	0.966814	94	1.390945	65	1.438690	72	1.034325	101	0.718936	33	**58** 0
10	5112	35	6908	94	1010	65	8618	72	4225	100	8902	34	50
20	5146	34	7001	93	1076	66	8546	72	4125	100	8868	34	40
30	5181	35	7095	94	1141	65	8474	72	4024	101	8834	34	30
40	5216	35	7189	94	1206	65	8402	72	3924	100	8801	33	20
50	5251	35	7283	94	1271	65	8329	73	3824	100	8767	34	10
3 0	0.695286	35	0.967377	94	1.391337	66	1.438257	72	1.033724	100	0.718733	34	**57** 0
10	5321	35	7471	94	1402	65	8185	72	3623	101	8700	33	50
20	5356	35	7564	93	1467	65	8113	72	3523	100	8666	34	40
30	5390	34	7658	94	1532	65	8041	72	3423	100	8632	34	30
40	5425	35	7752	94	1598	66	7969	72	3322	101	8598	34	20
50	5460	35	7846	94	1663	65	7897	72	3222	100	8565	33	10
4 0	0.695495	35	0.967940	94	1.391728	65	1.437825	72	1.033122	100	0.718531	34	**56** 0
10	5530	35	8034	94	1794	66	7753	72	3022	100	8497	34	50
20	5565	35	8128	94	1859	65	7681	72	2922	100	8464	33	40
30	5599	34	8222	94	1924	65	7609	72	2821	101	8430	34	30
40	5634	35	8316	94	1990	66	7537	72	2721	100	8396	34	20
50	5669	35	8410	94	2055	65	7465	72	2621	100	8362	34	10
5 0	0.695704	35	0.968504	94	1.392120	65	1.437393	72	1.032521	100	0.718329	33	**55** 0
10	5739	35	8597	93	2186	66	7321	72	2421	100	8295	34	50
20	5774	35	8691	94	2251	65	7249	72	2320	101	8261	34	40
30	5808	34	8785	94	2316	65	7177	72	2220	100	8228	33	30
40	5843	35	8879	94	2382	66	7105	72	2120	100	8194	34	20
50	5878	35	8973	94	2447	65	7034	71	2020	100	8160	34	10
6 0	0.695913	35	0.969067	94	1.392513	66	1.436962	72	1.031920	100	0.718126	34	**54** 0
10	5948	35	9161	94	2578	65	6890	72	1820	100	8093	33	50
20	5982	34	9255	94	2644	66	6818	72	1720	100	8059	34	40
30	6017	35	9349	94	2709	65	6746	72	1620	100	8025	34	30
40	6052	35	9444	95	2774	65	6674	72	1520	100	7991	34	20
50	6087	35	9538	94	2840	66	6602	72	1420	100	7958	33	10
7 0	0.696122	35	0.969632	94	1.392905	65	1.436531	71	1.031319	101	0.717924	34	**53** 0
10	6156	34	9726	94	2971	66	6459	72	1219	100	7890	34	50
20	6191	35	9820	94	3036	65	6387	72	1119	100	7856	34	40
30	6226	35	0.969914	94	3102	66	6315	72	1019	100	7823	33	30
40	6261	35	0.970008	94	3167	65	6243	72	0919	100	7789	34	20
50	6296	35	0102	94	3233	66	6172	71	0819	100	7755	34	10
8 0	0.696330	34	0.970196	94	1.393298	65	1.436100	72	1.030719	100	0.717721	34	**52** 0
10	6365	35	0290	94	3364	66	6028	72	0619	100	7688	33	50
20	6400	35	0384	94	3430	66	5956	72	0519	100	7654	34	40
30	6435	35	0479	95	3495	65	5884	72	0419	100	7620	34	30
40	6470	35	0573	94	3561	66	5813	71	0320	99	7586	34	20
50	6504	34	0667	94	3626	65	5741	72	0220	100	7552	34	10
9 0	0.696539	35	0.970761	94	1.393692	66	1.435669	72	1.030120	100	0.717519	33	**51** 0
10	6574	35	0855	94	3757	65	5598	71	1.030020	100	7485	34	50
20	6609	35	0949	94	3823	66	5526	72	1.029920	100	7451	34	40
30	6644	35	1044	95	3889	66	5454	72	9820	100	7417	34	30
40	6678	34	1138	94	3954	65	5383	71	9720	100	7384	33	20
50	6713	35	1232	94	4020	66	5311	72	9620	100	7350	34	10
10 0	0.696748	35	0.971326	94	1.394086	66	1.435239	72	1.029520	100	0.717316	34	**50** 0
	cos		cotg		cosec		sec		tang		sin		

33

1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

35

1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

66

1	6.6
2	13.2
3	19.8
4	26.4
5	33.0
6	39.6
7	46.2
8	52.8
9	59.4

71

1	7.1
2	14.2
3	21.3
4	28.4
5	35.5
6	42.6
7	49.7
8	56.8
9	63.9

73

1	7.3
2	14.6
3	21.9
4	29.2
5	36.5
6	43.8
7	51.1
8	58.4
9	65.7

94

1	9.4
2	18.8
3	28.2
4	37.6
5	47.0
6	56.4
7	65.8
8	75.2
9	84.6

99

1	9.9
2	19.8
3	29.7
4	39.6
5	49.5
6	59.4
7	69.3
8	79.2
9	89.1

100

1	10.0
2	20.0
3	30.0
4	40.0
5	50.0
6	60.0
7	70.0
8	80.0
9	90.0

45°

44°

	sin		tang		sec		cosec		cotg		cos		
10′ 0″	0.696748		0.971326		1.394086		1.435239		1.029520		0.717316		**50′** 0″
10	6783	35	1420	94	4151	65	5168	71	9420	100	7282	34	50
20	6817	34	1515	95	4217	66	5096	72	9321	99	7249	33	40
30	6852	35	1609	94	4283	66	5024	72	9221	100	7215	34	30
40	6887	35	1703	94	4348	65	4953	71	9121	100	7181	34	20
50	6922	35	1797	94	4414	66	4881	72	9021	100	7147	34	10
11 0	0.696957	35	0.971892	95	1.394480	66	1.434810	71	1.028921	100	0.717113	34	**49** 0
10	6991	34	1986	94	4545	65	4738	72	8821	100	7080	33	50
20	7026	35	2080	94	4611	66	4667	71	8722	99	7046	34	40
30	7061	35	2175	95	4677	66	4595	72	8622	100	7012	34	30
40	7096	35	2269	94	4743	66	4524	71	8522	100	6978	34	20
50	7130	34	2363	94	4808	65	4452	72	8422	100	6944	34	10
12 0	0.697165	35	0.972458	95	1.394874	66	1.434380	72	1.028323	99	0.716911	33	**48** 0
10	7200	35	2552	94	4940	66	4309	71	8223	100	6877	34	50
20	7235	35	2646	94	5006	66	4237	72	8123	100	6843	34	40
30	7269	34	2741	95	5071	65	4166	71	8023	100	6809	34	30
40	7304	35	2835	94	5137	66	4095	71	7924	99	6775	34	20
50	7339	35	2929	94	5203	66	4023	72	7824	100	6742	33	10
13 0	0.697374	35	0.973024	95	1.395269	66	1.433952	71	1.027724	100	0.716708	34	**47** 0
10	7408	34	3118	94	5335	66	3880	72	7625	99	6674	34	50
20	7443	35	3212	94	5400	65	3809	71	7525	100	6640	34	40
30	7478	35	3307	95	5466	66	3737	72	7425	100	6606	34	30
40	7513	35	3401	94	5532	66	3666	71	7326	99	6573	33	20
50	7547	34	3496	95	5598	66	3594	72	7226	100	6539	34	10
14 0	0.697582	35	0.973590	94	1.395664	66	1.433523	71	1.027126	100	0.716505	34	**46** 0
10	7617	35	3685	95	5730	66	3452	71	7027	99	6471	34	50
20	7652	35	3779	94	5796	66	3380	72	6927	100	6437	34	40
30	7686	34	3873	94	5862	66	3309	71	6827	100	6403	34	30
40	7721	35	3968	95	5927	65	3238	71	6728	99	6370	33	20
50	7756	35	4062	94	5993	66	3166	72	6628	100	6336	34	10
15 0	0.697790	34	0.974157	95	1.396059	66	1.433095	71	1.026529	99	0.716302	34	**45** 0
10	7825	35	4251	94	6125	66	3024	71	6429	100	6268	34	50
20	7860	35	4346	95	6191	66	2952	72	6330	99	6234	34	40
30	7895	35	4440	94	6257	66	2881	71	6230	100	6200	34	30
40	7929	34	4535	95	6323	66	2810	71	6131	99	6167	33	20
50	7964	35	4629	94	6389	66	2738	72	6031	100	6133	34	10
16 0	0.697999	35	0.974724	95	1.396455	66	1.432667	71	1.025931	100	0.716099	34	**44** 0
10	8034	35	4819	95	6521	66	2596	71	5832	99	6065	34	50
20	8068	34	4913	94	6587	66	2525	71	5732	100	6031	34	40
30	8103	35	5008	95	6653	66	2454	71	5633	99	5997	34	30
40	8138	35	5102	94	6719	66	2382	72	5534	99	5964	33	20
50	8172	34	5197	95	6785	66	2311	71	5434	100	5930	34	10
17 0	0.698207	35	0.975291	94	1.396851	66	1.432240	71	1.025335	99	0.715896	34	**43** 0
10	8242	35	5386	95	6917	66	2169	71	5235	100	5862	34	50
20	8276	34	5481	95	6983	66	2097	72	5136	99	5828	34	40
30	8311	35	5575	94	7049	66	2026	71	5036	100	5794	34	30
40	8346	35	5670	95	7115	66	1955	71	4937	99	5760	34	20
50	8381	35	5764	94	7182	67	1884	71	4837	100	5727	33	10
18 0	0.698415	34	0.975859	95	1.397248	66	1.431813	71	1.024738	99	0.715693	34	**42** 0
10	8450	35	5954	95	7314	66	1742	71	4639	99	5659	34	50
20	8485	35	6048	94	7380	66	1671	71	4539	100	5625	34	40
30	8519	34	6143	95	7446	66	1600	71	4440	99	5591	34	30
40	8554	35	6238	95	7512	66	1528	72	4341	99	5557	34	20
50	8589	35	6332	94	7578	66	1457	71	4241	100	5523	34	10
19 0	0.698623	34	0.976427	95	1.397644	66	1.431386	71	1.024142	99	0.715490	33	**41** 0
10	8658	35	6522	95	7711	67	1315	71	4043	99	5456	34	50
20	8693	35	6617	95	7777	66	1244	71	3943	100	5422	34	40
30	8727	34	6711	94	7843	66	1173	71	3844	99	5388	34	30
40	8762	35	6806	95	7909	66	1102	71	3745	99	5354	34	20
50	8797	35	6901	95	7975	66	1031	71	3645	100	5320	34	10
20 0	0.698832	35	0.976996	95	1.398042	67	1.430960	71	1.023546	99	0.715286	34	**40** 0
	cos		cotg		cosec		sec		tang		sin		

34		65		67		72		93		95		100		101	
1	3.4	1	6.5	1	6.7	1	7.2	1	9.3	1	9.5	1	10.0	1	10.1
2	6.8	2	13.0	2	13.4	2	14.4	2	18.6	2	19.0	2	20.0	2	20.2
3	10.2	3	19.5	3	20.1	3	21.6	3	27.9	3	28.5	3	30.0	3	30.3
4	13.6	4	26.0	4	26.8	4	28.8	4	37.2	4	38.0	4	40.0	4	40.4
5	17.0	5	32.5	5	33.5	5	36.0	5	46.5	5	47.5	5	50.0	5	50.5
6	20.4	6	39.0	6	40.2	6	43.2	6	55.8	6	57.0	6	60.0	6	60.6
7	23.8	7	45.5	7	46.9	7	50.4	7	65.1	7	66.5	7	70.0	7	70.7
8	27.2	8	52.0	8	53.6	8	57.6	8	74.4	8	76.0	8	80.0	8	80.8
9	30.6	9	58.5	9	60.3	9	64.8	9	83.7	9	85.5	9	90.0	9	90.9

45°

44°

	sin		tang		sec		cosec		cotg		cos		
20′ 0″	0.698832		0.976996		1.398042		1.430960		1.023546		0.715286		**40′** 0″
10	8866	34	7090	94	8108	66	0889	71	3447	99	5252	34	50
20	8901	35	7185	95	8174	66	0818	71	3348	99	5219	33	40
30	8936	35	7280	95	8240	66	0747	71	3248	100	5185	34	30
40	8970	34	7375	95	8307	67	0676	71	3149	99	5151	34	20
50	9005	35	7469	94	8373	66	0605	71	3050	99	5117	34	10
21 0	0.699040	35	0.977564	95	1.398439	66	1.430534	71	1.022951	99	0.715083	34	**39** 0
10	9074	34	7659	95	8505	66	0463	71	2851	100	5049	34	50
20	9109	35	7754	95	8572	67	0392	71	2752	99	5015	34	40
30	9144	35	7849	95	8638	66	0321	71	2653	99	4981	34	30
40	9178	34	7944	95	8704	66	0250	71	2554	99	4947	34	20
50	9213	35	8038	94	8771	67	0180	70	2455	99	4914	33	10
22 0	0.699248	35	0.978133	95	1.398837	66	1.430109	71	1.022356	99	0.714880	34	**38** 0
10	9282	34	8228	95	8903	66	1.430038	71	2256	100	4846	34	50
20	9317	35	8323	95	8970	67	1.429967	71	2157	99	4812	34	40
30	9352	35	8418	95	9036	66	9896	71	2058	99	4778	34	30
40	9386	34	8513	95	9102	66	9825	71	1959	99	4744	34	20
50	9421	35	8608	95	9169	67	9754	71	1860	99	4710	34	10
23 0	0.699455	34	0.978703	95	1.399235	66	1.429684	70	1.021761	99	0.714676	34	**37** 0
10	9490	35	8798	95	9302	67	9613	71	1662	99	4642	34	50
20	9525	35	8893	95	9368	66	9542	71	1563	99	4608	34	40
30	9559	34	8987	94	9434	66	9471	71	1464	99	4574	34	30
40	9594	35	9082	95	9501	67	9400	71	1364	100	4541	33	20
50	9629	35	9177	95	9567	66	9330	70	1265	99	4507	34	10
24 0	0.699663	34	0.979272	95	1.399634	67	1.429259	71	1.021166	99	0.714473	34	**36** 0
10	9698	35	9367	95	9700	66	9188	71	1067	99	4439	34	50
20	9733	35	9462	95	9767	67	9117	71	0968	99	4405	34	40
30	9767	34	9557	95	9833	66	9047	70	0869	99	4371	34	30
40	9802	35	9652	95	9900	67	8976	71	0770	99	4337	34	20
50	9837	35	9747	95	1.399966	66	8905	71	0671	99	4303	34	10
25 0	0.699871	34	0.979842	95	1.400033	67	1.428834	71	1.020572	99	0.714269	34	**35** 0
10	9906	35	0.979937	95	0099	66	8764	70	0473	99	4235	34	50
20	9940	34	0.980032	95	0166	67	8693	71	0374	99	4201	34	40
30	0.699975	35	0127	95	0232	66	8622	71	0275	99	4167	34	30
40	0.700010	35	0223	96	0299	67	8552	70	0177	98	4133	34	20
50	0044	34	0318	95	0365	66	8481	71	1.020078	99	4099	34	10
26 0	0.700079	35	0.980413	95	1.400432	67	1.428410	71	1.019979	99	0.714066	33	**34** 0
10	0114	35	0508	95	0498	66	8340	70	9880	99	4032	34	50
20	0148	34	0603	95	0565	67	8269	71	9781	99	3998	34	40
30	0183	35	0698	95	0631	66	8199	70	9682	99	3964	34	30
40	0217	34	0793	95	0698	67	8128	71	9583	99	3930	34	20
50	0252	35	0888	95	0765	67	8057	71	9484	99	3896	34	10
27 0	0.700287	35	0.980983	95	1.400831	66	1.427987	70	1.019385	99	0.713862	34	**33** 0
10	0321	34	1078	95	0898	67	7916	71	9286	99	3828	34	50
20	0356	35	1174	96	0965	67	7846	70	9188	98	3794	34	40
30	0390	34	1269	95	1031	66	7775	71	9089	99	3760	34	30
40	0425	35	1364	95	1098	67	7705	70	8990	99	3726	34	20
50	0460	35	1459	95	1165	67	7634	71	8891	99	3692	34	10
28 0	0.700494	34	0.981554	95	1.401231	66	1.427564	70	1.018792	99	0.713658	34	**32** 0
10	0529	35	1650	96	1298	67	7493	71	8694	98	3624	34	50
20	0563	34	1745	95	1365	67	7423	70	8595	99	3590	34	40
30	0598	35	1840	95	1431	66	7352	71	8496	99	3556	34	30
40	0633	35	1935	95	1498	67	7282	70	8397	99	3522	34	20
50	0667	34	2030	95	1565	67	7211	71	8298	99	3488	34	10
29 0	0.700702	35	0.982126	96	1.401631	66	1.427141	70	1.018200	98	0.713454	34	**31** 0
10	0736	34	2221	95	1698	67	7070	71	8101	99	3420	34	50
20	0771	35	2316	95	1765	67	7000	70	8002	99	3386	34	40
30	0806	35	2411	95	1832	67	6929	71	7903	99	3352	34	30
40	0840	34	2507	96	1898	66	6859	70	7805	98	3318	34	20
50	0875	35	2602	95	1965	67	6789	70	7706	99	3284	34	10
30 0	0.700909	34	0.982697	95	1.402032	67	1.426718	71	1.017607	99	0.713250	34	**30** 0
	cos		cotg		cosec		sec		tang		sin		

33

1	3.3
2	6.6
3	9.9
4	13.2
5	16.5
6	19.8
7	23.1
8	26.4
9	29.7

35

1	3.5
2	7.0
3	10.5
4	14.0
5	17.5
6	21.0
7	24.5
8	28.0
9	31.5

67

1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

69

1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

71

1	7.1
2	14.2
3	21.3
4	28.4
5	35.5
6	42.6
7	49.7
8	56.8
9	63.9

95

1	9.5
2	19.0
3	28.5
4	38.0
5	47.5
6	57.0
7	66.5
8	76.0
9	85.5

98

1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2

99

1	9.9
2	19.8
3	29.7
4	39.6
5	49.5
6	59.4
7	69.3
8	79.2
9	89.1

45°

44°

	sin		tang		sec		cosec		cotg		cos		
30′ 0″	0.700909		0.982697		1.402032		1.426718		1.017607		0.713250		**30′** 0″
10	0944	35	2793	96	2099	67	6648	70	7509	98	3216	34	50
20	0978	34	2888	95	2166	67	6577	71	7410	99	3182	34	40
30	1013	35	2983	95	2232	66	6507	70	7311	99	3148	34	30
40	1048	35	3079	96	2299	67	6437	70	7213	98	3115	33	20
50	1082	34	3174	95	2366	67	6366	71	7114	99	3081	34	10
31 0	0.701117	35	0.983269	95	1.402433	67	1.426296	70	1.017015	99	0.713047	34	**29** 0
10	1151	34	3365	96	2500	67	6226	70	6917	98	3013	34	50
20	1186	35	3460	95	2567	67	6155	71	6818	99	2979	34	40
30	1220	34	3555	95	2634	67	6085	70	6720	98	2945	34	30
40	1255	35	3651	96	2701	67	6015	70	6621	99	2911	34	20
50	1290	35	3746	95	2767	66	5945	70	6522	99	2877	34	10
32 0	0.701324	34	0.983842	96	1.402834	67	1.425874	71	1.016424	98	0.712843	34	**28** 0
10	1359	35	3937	95	2901	67	5804	70	6325	99	2809	34	50
20	1393	34	4032	95	2968	67	5734	70	6227	98	2775	34	40
30	1428	35	4128	96	3035	67	5664	70	6128	99	2741	34	30
40	1462	34	4223	95	3102	67	5593	71	6030	98	2707	34	20
50	1497	35	4319	96	3169	67	5523	70	5931	99	2673	34	10
33 0	0.701531	34	0.984414	95	1.403236	67	1.425453	70	1.015833	98	0.712639	34	**27** 0
10	1566	35	4510	96	3303	67	5383	70	5734	99	2605	34	50
20	1601	35	4605	95	3370	67	5313	70	5636	98	2570	35	40
30	1635	34	4701	96	3437	67	5242	71	5537	99	2536	34	30
40	1670	35	4796	95	3504	67	5172	70	5439	98	2502	34	20
50	1704	34	4892	96	3571	67	5102	70	5340	99	2468	34	10
34 0	0.701739	35	0.984987	95	1.403638	67	1.425032	70	1.015242	98	0.712434	34	**26** 0
10	1773	34	5083	96	3705	67	4962	70	5143	99	2400	34	50
20	1808	35	5178	95	3772	67	4892	70	5045	98	2366	34	40
30	1842	34	5274	96	3839	67	4821	71	4946	99	2332	34	30
40	1877	35	5369	95	3906	67	4751	70	4848	98	2298	34	20
50	1911	34	5465	96	3973	67	4681	70	4750	98	2264	34	10
35 0	0.701946	35	0.985560	95	1.404040	67	1.424611	70	1.014651	99	0.712230	34	**25** 0
10	1980	34	5656	96	4107	67	4541	70	4553	98	2196	34	50
20	2015	35	5752	96	4175	68	4471	70	4454	99	2162	34	40
30	2049	34	5847	95	4242	67	4401	70	4356	98	2128	34	30
40	2084	35	5943	96	4309	67	4331	70	4258	98	2094	34	20
50	2119	35	6038	95	4376	67	4261	70	4159	99	2060	34	10
36 0	0.702153	34	0.986134	96	1.404443	67	1.424191	70	1.014061	98	0.712026	34	**24** 0
10	2188	35	6230	96	4510	67	4121	70	3963	98	1992	34	50
20	2222	34	6325	95	4577	67	4051	70	3864	99	1958	34	40
30	2257	35	6421	96	4644	67	3981	70	3766	98	1924	34	30
40	2291	34	6517	96	4712	68	3911	70	3668	98	1890	34	20
50	2326	35	6612	95	4779	67	3841	70	3569	99	1856	34	10
37 0	0.702360	34	0.986708	96	1.404846	67	1.423771	70	1.013471	98	0.711822	34	**23** 0
10	2395	35	6804	96	4913	67	3701	70	3373	98	1788	34	50
20	2429	34	6899	95	4980	67	3631	70	3275	98	1754	34	40
30	2464	35	6995	96	5048	68	3561	70	3176	99	1720	34	30
40	2498	34	7091	96	5115	67	3491	70	3078	98	1686	34	20
50	2533	35	7186	95	5182	67	3421	70	2980	98	1651	35	10
38 0	0.702567	34	0.987282	96	1.405249	67	1.423351	70	1.012882	98	0.711617	34	**22** 0
10	2602	35	7378	96	5317	68	3282	69	2783	99	1583	34	50
20	2636	34	7474	96	5384	67	3212	70	2685	98	1549	34	40
30	2671	35	7569	95	5451	67	3142	70	2587	98	1515	34	30
40	2705	34	7665	96	5519	68	3072	70	2489	98	1481	34	20
50	2740	35	7761	96	5586	67	3002	70	2391	98	1447	34	10
39 0	0.702774	34	0.987857	96	1.405653	67	1.422932	70	1.012293	98	0.711413	34	**21** 0
10	2809	35	7953	96	5721	68	2862	70	2194	99	1379	34	50
20	2843	34	8048	95	5788	67	2793	69	2096	98	1345	34	40
30	2878	35	8144	96	5855	67	2723	70	1998	98	1311	34	30
40	2912	34	8240	96	5923	68	2653	70	1900	98	1277	34	20
50	2947	35	8336	96	5990	67	2583	70	1802	98	1243	34	10
40 0	0.702981	34	0.988432	96	1.406057	67	1.422513	70	1.011704	98	0.711209	34	**20** 0
	cos		cotg		cosec		sec		tang		sin		

34		66		68		70		94		96		99		100	
1	3.4	1	6.6	1	6.8	1	7.0	1	9.4	1	9.6	1	9.9	1	10.0
2	6.8	2	13.2	2	13.6	2	14.0	2	18.8	2	19.2	2	19.8	2	20.0
3	10.2	3	19.8	3	20.4	3	21.0	3	28.2	3	28.8	3	29.7	3	30.0
4	13.6	4	26.4	4	27.2	4	28.0	4	37.6	4	38.4	4	39.6	4	40.0
5	17.0	5	33.0	5	34.0	5	35.0	5	47.0	5	48.0	5	49.5	5	50.0
6	20.4	6	39.6	6	40.8	6	42.0	6	56.4	6	57.6	6	59.4	6	60.0
7	23.8	7	46.2	7	47.6	7	49.0	7	65.8	7	67.2	7	69.3	7	70.0
8	27.2	8	52.8	8	54.4	8	56.0	8	75.2	8	76.8	8	79.2	8	80.0
9	30.6	9	59.4	9	61.2	9	63.0	9	84.6	9	86.4	9	89.1	9	90.0

45°

44°

	sin		tang		sec		cosec		cotg		cos		
40′ 0″	0.702981		0.988432		1.406057		1.422513		1.011704		0.711209		**20′** 0″
10	3016	35	8527	95	6125	68	2444	69	1606	98	1174	35	50
20	3050	34	8623	96	6192	67	2374	70	1508	98	1140	34	40
30	3084	34	8719	96	6259	67	2304	70	1409	99	1106	34	30
40	3119	35	8815	96	6327	68	2234	70	1311	98	1072	34	20
50	3153	34	8911	96	6394	67	2165	69	1213	98	1038	34	10
41 0	0.703188	35	0.989007	96	1.406462	68	1.422095	70	1.011115	98	0.711004	34	**19** 0
10	3222	34	9103	96	6529	67	2025	70	1017	98	0970	34	50
20	3257	35	9199	96	6597	68	1956	69	0919	98	0936	34	40
30	3291	34	9295	96	6664	67	1886	70	0821	98	0902	34	30
40	3326	35	9391	96	6732	68	1816	70	0723	98	0868	34	20
50	3360	34	9487	96	6799	67	1747	69	0625	98	0834	34	10
42 0	0.703395	35	0.989582	95	1.406867	68	1.421677	70	1.010527	98	0.710799	35	**18** 0
10	3429	34	9678	96	6934	67	1607	70	0429	98	0765	34	50
20	3464	35	9774	96	7002	68	1538	69	0331	98	0731	34	40
30	3498	34	9870	96	7069	67	1468	70	0233	98	0697	34	30
40	3533	35	0.989966	96	7137	68	1398	70	0135	98	0663	34	20
50	3567	34	0.990062	96	7204	67	1329	69	1.010037	98	0629	34	10
43 0	0.703601	34	0.990158	96	1.407272	68	1.421259	70	1.009939	98	0.710595	34	**17** 0
10	3636	35	0254	96	7339	67	1190	69	9842	97	0561	34	50
20	3670	34	0350	96	7407	68	1120	70	9744	98	0527	34	40
30	3705	35	0446	96	7474	67	1050	70	9646	98	0492	35	30
40	3739	34	0543	97	7542	68	0981	69	9548	98	0458	34	20
50	3774	35	0639	96	7610	68	0911	70	9450	98	0424	34	10
44 0	0.703808	34	0.990735	96	1.407677	67	1.420842	69	1.009352	98	0.710390	34	**16** 0
10	3843	35	0831	96	7745	68	0772	70	9254	98	0356	34	50
20	3877	34	0927	96	7812	67	0703	69	9156	98	0322	34	40
30	3911	34	1023	96	7880	68	0633	70	9058	98	0288	34	30
40	3946	35	1119	96	7948	68	0564	69	8961	97	0254	34	20
50	3980	34	1215	96	8015	67	0494	70	8863	98	0220	34	10
45 0	0.704015	35	0.991311	96	1.408083	68	1.420425	69	1.008765	98	0.710185	35	**15** 0
10	4049	34	1407	96	8151	68	0355	70	8667	98	0151	34	50
20	4084	35	1503	96	8218	67	0286	69	8569	98	0117	34	40
30	4118	34	1600	97	8286	68	0216	70	8472	97	0083	34	30
40	4152	34	1696	96	8354	68	0147	69	8374	98	0049	34	20
50	4187	35	1792	96	8422	68	0078	69	8276	98	0.710015	34	10
46 0	0.704221	34	0.991888	96	1.408489	67	1.420008	70	1.008178	98	0.709981	34	**14** 0
10	4256	35	1984	96	8557	68	1.419939	69	8080	98	9946	35	50
20	4290	34	2080	96	8625	68	9869	70	7983	97	9912	34	40
30	4325	35	2177	97	8693	68	9800	69	7885	98	9878	34	30
40	4359	34	2273	96	8760	67	9731	69	7787	98	9844	34	20
50	4393	34	2369	96	8828	68	9661	70	7690	97	9810	34	10
47 0	0.704428	35	0.992465	96	1.408896	68	1.419592	69	1.007592	98	0.709776	34	**13** 0
10	4462	34	2562	97	8964	68	9523	69	7494	98	9742	34	50
20	4497	35	2658	96	9031	67	9453	70	7396	98	9707	35	40
30	4531	34	2754	96	9099	68	9384	69	7299	97	9673	34	30
40	4565	34	2850	96	9167	68	9315	69	7201	98	9639	34	20
50	4600	35	2947	97	9235	68	9245	70	7103	98	9605	34	10
48 0	0.704634	34	0.993043	96	1.409303	68	1.419176	69	1.007006	97	0.709571	34	**12** 0
10	4669	35	3139	96	9371	68	9107	69	6908	98	9537	34	50
20	4703	34	3236	97	9438	67	9038	69	6811	97	9502	35	40
30	4737	34	3332	96	9506	68	8968	70	6713	98	9468	34	30
40	4772	35	3428	96	9574	68	8899	69	6615	98	9434	34	20
50	4806	34	3525	97	9642	68	8830	69	6518	97	9400	34	10
49 0	0.704841	35	0.993621	96	1.409710	68	1.418761	69	1.006420	98	0.709366	34	**11** 0
10	4875	34	3717	96	9778	68	8691	70	6323	97	9332	34	50
20	4909	34	3814	97	9846	68	8622	69	6225	98	9297	35	40
30	4944	35	3910	96	9914	68	8553	69	6127	98	9263	34	30
40	4978	34	4006	96	1.409982	68	8484	69	6030	97	9229	34	20
50	5013	35	4103	97	1.410050	68	8415	69	5932	98	9195	34	10
50 0	0.705047	34	0.994199	96	1.410118	68	1.418345	70	1.005835	97	0.709161	34	**10** 0
	cos		cotg		cosec		sec		tang		sin		

34	
1	3.4
2	6.8
3	10.2
4	13.6
5	17.0
6	20.4
7	23.8
8	27.2
9	30.6

67	
1	6.7
2	13.4
3	20.1
4	26.8
5	33.5
6	40.2
7	46.9
8	53.6
9	60.3

69	
1	6.9
2	13.8
3	20.7
4	27.6
5	34.5
6	41.4
7	48.3
8	55.2
9	62.1

95	
1	9.5
2	19.0
3	28.5
4	38.0
5	47.5
6	57.0
7	66.5
8	76.0
9	85.5

97	
1	9.7
2	19.4
3	29.1
4	38.8
5	48.5
6	58.2
7	67.9
8	77.6
9	87.3

98	
1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2

45°

44°

		sin		tang		sec		cosec		cotg		cos		
50′	0″	0.705047		0.994199		1.410118		1.418345		1.005835		0.709161		**10′** 0″
	10	5081	34	4296	97	0186	68	8276	69	5737	98	9126	35	50
	20	5116	35	4392	96	0254	68	8207	69	5640	97	9092	34	40
	30	5150	34	4488	96	0322	68	8138	69	5542	98	9058	34	30
	40	5184	34	4585	97	0390	68	8069	69	5445	97	9024	34	20
	50	5219	35	4681	96	0458	68	8000	69	5347	98	8990	34	10
51	0	0.705253	34	0.994778	97	1.410526	68	1.417931	69	1.005250	97	0.708956	34	**9** 0
	10	5288	35	4874	96	0594	68	7861	70	5152	98	8921	35	50
	20	5322	34	4971	97	0662	68	7792	69	5055	97	8887	34	40
	30	5356	34	5067	96	0730	68	7723	69	4957	98	8853	34	30
	40	5391	35	5164	97	0798	68	7654	69	4860	97	8819	34	20
	50	5425	34	5260	96	0866	68	7585	69	4762	98	8785	34	10
52	0	0.705459	34	0.995357	97	1.410934	68	1.417516	69	1.004665	97	0.708750	35	**8** 0
	10	5494	35	5453	96	1002	68	7447	69	4568	97	8716	34	50
	20	5528	34	5550	97	1070	68	7378	69	4470	98	8682	34	40
	30	5562	34	5646	96	1138	68	7309	69	4373	97	8648	34	30
	40	5597	35	5743	97	1206	68	7240	69	4275	98	8614	34	20
	50	5631	34	5839	96	1275	69	7171	69	4178	97	8579	35	10
53	0	0.705665	34	0.995936	97	1.411343	68	1.417102	69	1.004081	97	0.708545	34	**7** 0
	10	5700	35	6032	96	1411	68	7033	69	3983	98	8511	34	50
	20	5734	34	6129	97	1479	68	6964	69	3886	97	8477	34	40
	30	5769	35	6226	97	1547	68	6895	69	3789	97	8442	35	30
	40	5803	34	6322	96	1615	68	6826	69	3691	98	8408	34	20
	50	5837	34	6419	97	1684	69	6757	69	3594	97	8374	34	10
54	0	0.705872	35	0.996515	96	1.411752	68	1.416688	69	1.003497	97	0.708340	34	**6** 0
	10	5906	34	6612	97	1820	68	6619	69	3399	98	8306	34	50
	20	5940	34	6709	97	1888	68	6550	69	3302	97	8271	35	40
	30	5975	35	6805	96	1956	68	6482	68	3205	97	8237	34	30
	40	6009	34	6902	97	2025	69	6413	69	3108	97	8203	34	20
	50	6043	34	6999	97	2093	68	6344	69	3010	98	8169	34	10
55	0	0.706078	35	0.997095	96	1.412161	68	1.416275	69	1.002913	97	0.708134	35	**5** 0
	10	6112	34	7192	97	2229	68	6206	69	2816	97	8100	34	50
	20	6146	34	7289	97	2298	69	6137	69	2719	97	8066	34	40
	30	6181	35	7385	96	2366	68	6068	69	2621	98	8032	34	30
	40	6215	34	7482	97	2434	68	6000	68	2524	97	7998	34	20
	50	6249	34	7579	97	2503	69	5931	69	2427	97	7963	35	10
56	0	0.706284	35	0.997676	97	1.412571	68	1.415862	69	1.002330	97	0.707929	34	**4** 0
	10	6318	34	7772	96	2639	68	5793	69	2233	97	7895	34	50
	20	6352	34	7869	97	2708	69	5724	69	2135	98	7861	34	40
	30	6387	35	7966	97	2776	68	5656	68	2038	97	7826	35	30
	40	6421	34	8063	97	2844	68	5587	69	1941	97	7792	34	20
	50	6455	34	8159	96	2913	69	5518	69	1844	97	7758	34	10
57	0	0.706489	34	0.998256	97	1.412981	68	1.415449	69	1.001747	97	0.707724	34	**3** 0
	10	6524	35	8353	97	3049	68	5381	68	1650	97	7689	35	50
	20	6558	34	8450	97	3118	69	5312	69	1553	97	7655	34	40
	30	6592	34	8547	97	3186	68	5243	69	1455	98	7621	34	30
	40	6627	35	8643	96	3255	69	5174	69	1358	97	7587	34	20
	50	6661	34	8740	97	3323	68	5106	68	1261	97	7552	35	10
58	0	0.706695	34	0.998837	97	1.413392	69	1.415037	69	1.001164	97	0.707518	34	**2** 0
	10	6730	35	8934	97	3460	68	4968	69	1067	97	7484	34	50
	20	6764	34	9031	97	3528	68	4900	68	0970	97	7450	34	40
	30	6798	34	9128	97	3597	69	4831	69	0873	97	7415	35	30
	40	6832	34	9225	97	3665	68	4762	69	0776	97	7381	34	20
	50	6867	35	9321	96	3734	69	4694	68	0679	97	7347	34	10
59	0	0.706901	34	0.999418	97	1.413802	68	1.414625	69	1.000582	97	0.707312	35	**1** 0
	10	6935	34	9515	97	3871	69	4557	68	0485	97	7278	34	50
	20	6970	35	9612	97	3939	68	4488	69	0388	97	7244	34	40
	30	7004	34	9709	97	4008	69	4419	69	0291	97	7210	34	30
	40	7038	34	9806	97	4076	68	4351	68	0194	97	7175	35	20
	50	7072	34	0.999903	97	4145	69	4282	69	0097	97	7141	34	10
60	0	0.707107	35	1.000000	97	1.414214	69	1.414214	68	1.000000	97	0.707107	34	**0** 0
		cos		cotg		cosec		sec		tang		sin		

35		68		70		96		98		99	
1	3.5	1	6.8	1	7.0	1	9.6	1	9.8	1	9.9
2	7.0	2	13.6	2	14.0	2	19.2	2	19.6	2	19.8
3	10.5	3	20.4	3	21.0	3	28.8	3	29.4	3	29.7
4	14.0	4	27.2	4	28.0	4	38.4	4	39.2	4	39.6
5	17.5	5	34.0	5	35.0	5	48.0	5	49.0	5	49.5
6	21.0	6	40.8	6	42.0	6	57.6	6	58.8	6	59.4
7	24.5	7	47.6	7	49.0	7	67.2	7	68.6	7	69.3
8	28.0	8	54.4	8	56.0	8	76.8	8	78.4	8	79.2
9	31.5	9	61.2	9	63.0	9	86.4	9	88.2	9	89.1

45°